THE GAS JOURNAL

MARCH 14, 1934

Vol. 205. 86th Year No. 3695

A Glance at the Contents—

The Arthur Duckham Memorial Fund.

A list of donors to this Fund, with the amount subscribed, will be found on p. 682.

Two-Part Tariffs for Slot Consumers.

An ingenious arrangement for attachment to the slot meter which enables a service charge to be obtained weekly in advance is described on page 683.

Post Vacant.

A Gas Department in Yorkshire invites applications for the position of distribution and sales superintendent at a salary of £260 per annum. [p. 702.]

Gas at the South London Exhibition.

A very fine display has been arranged by the South Metropolitan and South Suburban Gas Companies at the South London Exhibition at the Crystal Palace. [p. 686.]

Glover-West Verticals at Wellingborough.

The operating results are given of the Glover-West vertical retort plant installed at Wellingborough in 1932, and described and illustrated in our issue of July 12 last. [p. 684.]

Provincial Gas Companies.

Working results for 1933 of further provincial gas companies are given. [pp. 696, 697.]

South Metropolitan Gas Bill.

The preamble has been proved of this Bill to prevent municipal authorities from imposing restrictions on their tenants as to the form of light, heat, or power they shall use. [p. 694.]

Gas Heating for Turkish Baths.

Gas supplies the necessary heat for all purposes at the Kensington Spa establishment for ladies—central heating, hot water, steam for the Russian bath, and hot air for the Turkish bath. [p. 685.]

The Government Gas Bill.

We publish a contributed article explaining the doubtful points of the Government Bill to amend the law with respect to gas undertakings. [p. 679.]

Midland Association.

There was a good attendance at the Annual Meeting of the Midland Association of Gas Engineers and Managers at Birmingham on March 8, when Mr. R. S. Ramsden delivered his Presidential Address. [p. 689.]

Forthcoming Engagements

March 16.—I.G.E.—Meeting of Meters Committee, 2.30 p.m.
March 16.—LONDON AND SOUTHERN JUNIOR ASSOCIATION.—Meeting. Paper by Mr. L. T. Minchin.
March 16.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS (WESTERN DISTRICT).—Commercial Meeting at the Rougemont Hotel, Exeter, 2.30 p.m.
March 19.—GAS COMPANIES' PROTECTION ASSOCIATION.—Meeting of Committee, 5, Victoria Street, S.W. 1, 2.30 p.m.
March 20.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS (EASTERN DISTRICT).—Meeting at No. 28, Grosvenor Gardens, S.W. 1. Discussion on "Gas Tariffs."
March 21.—B.C.G.A.—Meeting of Executive Committee, 12 noon, 28, Grosvenor Gardens, S.W. 1.
March 23.—MANCHESTER DISTRICT ASSOCIATION. — Annual Meeting at the Midland Hotel, Manchester. Luncheon, 1 p.m. Business Meeting, 2.30 p.m. Presidential Address of Mr. F. G. Shaw.
March 24.—YORKSHIRE JUNIOR ASSOCIATION.—Meeting at Batley.
March 27.—SOUTHERN ASSOCIATION.—Annual General Meeting, Hotel Metropole, London, 2 p.m.
April 6.—NORTH BRITISH ASSOCIATION.—Spring Meeting at Perth.
April 6.—LONDON AND SOUTHERN JUNIOR ASSOCIATION.—Meeting. Paper by Mr. H. H. Brown.
April 7.—MANCHESTER AND DISTRICT JUNIOR ASSOCIATION.—Annual Dinner. Paper by Mr. H. Platt.
April 7.—SCOTTISH EASTERN JUNIOR ASSOCIATION.—Visit to Messrs. J. G. Stein & Co., Castle Carey. Paper by Mr. R. Malcolm.
April 9.—I.G.E.—Meetings of Finance Sub-Committee, 1.45 p.m.; Membership Sub-Committee, 2.30 p.m.; General Purposes Committee, 3.15 p.m.; Benevolent Fund Committee of Management, 4.30 p.m.
April 10.—I.G.E.—Meetings of Council, 10 a.m.; Education Committee, 4 p.m.
April 11.—I.G.E.—Meetings of Education Executive Committee, 10 a.m.; Sir Arthur Duckham Memorial Fund Executive Committee, 2.30 p.m.
April 12.—MIDLAND JUNIOR ASSOCIATION.—Meeting. Paper by Mr. F. H. Bate.
April 30.—I.G.E.—Meeting of Liquor Effluents and Ammonia Sub-Committee, 2.30 p.m.
May 1.—I.G.E.—Meetings of Joint Research Committee, 10.30 a.m.; General Research Committee, 2.30 p.m.
May 9.—S.B.G.I.—Annual General Meeting and Dinner, Hotel Metropole, London.
June 5-8.—I.G.E.—Annual General Meeting, London.

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Page 125. BOLTON. R. Taylor, Public Lighting Superintendent, deceased.

EDITORIAL NOTES

The Second Reading

SINCE we enumerated in the Editorial columns of the "JOURNAL" a fortnight ago, to the best of our ability, the main provisions of the Government Bill to amend the law with respect to gas undertakings, there has naturally been much discussion with regard to the measure, both from the point of view of the proposals as a whole and with reference to details, and from both angles opinion has been diversified. So far as the proposals as a whole are concerned, this is, perhaps, to be expected. No Bill of its kind would satisfy everybody, and admittedly this one does not give all that the Industry hoped for. For instance, it was pointed out by us in the "JOURNAL" of Feb. 28 that no reference was to be found in the Bill to empowering undertakings to impose a minimum quarterly charge upon consumers, and this omission has been a disappointment. But if the Industry is not obtaining by the Bill everything it might desire, remarks on second reading in the House of Lords (as recorded in the news columns of this issue of the "JOURNAL") revealed recognition of the necessity of legislation in order to enable gas undertakings to compete on more equal terms with electrical undertakings, and so if the measure proved ineffective in this respect revision might fairly be looked for. Meanwhile, let us remember that the Bill does contain nearly all the recommendations of the Gas Legislation Committee, and let us resolve to explore to the uttermost its possibilities for good, before dwelling over much upon any blemishes that may suggest themselves.

With regard to details, one could wish that some means had been possible of setting forth more clearly the exact intention of certain parts of the Bill. A case in point is clause 5, which deals with the very kernel of the Bill. This clause, with its sub-section and provisos, extends to no less than 130 lines of the official print—some of them full lines and others indented once, sometimes twice. Fearing that what seemed to us involved might also appear intricate to others, we publish on later pages of this number of the "JOURNAL" a contributed article which explains the doubtful points.

Readers should study carefully the article referred to, and dwell upon the writer's comments. Bear in mind what is said there—that the question of gas charges has yet to find a final solution, and that the Bill certainly gives scope for experiments. The end may not be yet; but we support our contributor in his expression of opinion that, so far as it goes, the Bill is helpful, and in his hope that, if it becomes law, the Gas Industry will avail itself of its powers.

A Useful Discussion

AT the meeting of the Midland Association of Gas Engineers and Managers last week the unusual course was taken by the President of allowing discussion of his Address. The idea proved eminently successful, as will be gathered from our report on later pages. Mr. R. S. Ramsden, the new President, touched on many points concerned with gas manufacture and gas salesmanship, and he set an excellent example in keeping his remarks within reasonable compass. Among works problems mentioned is the difficulty experienced in very warm weather, such as that of last summer, in extracting all the sulphuretted hydrogen from the gas; and it would appear that this is due to interaction of ammonia, of which under the conditions stated a greater quantity than normal may be passing to the boxes, with carbon bisulphide. During the discussion one speaker called attention to another trouble occasionally encountered in regard to sulphuretted hydrogen. While the gas passed into the holder may be quite free from this constituent, it is sometimes found that gas leaving the holder has an appreciable sulphuretted hydrogen content. Comment on this was made at a recent research meeting of the Institution of Gas Engineers; and we may well recall the remarks of Mr. E. V. Evans, of the South Metropolitan Gas Company, on that occasion. He spoke of unfriendly bacteria. In rivers and streams there exists an organism which is capable of absorbing sulphates in ordinary water and evolving in their stead sulphuretted hydrogen. If holder water becomes infected with this disease—and the bacillus grows and multiplies at an enormous rate—matters become troublesome. However, the means of dealing with hydrogen sulphide production are now established. The organisms consume the sulphates of the water, and the process adopted by the South Metropolitan Company is to let them get on with the good work until absorption of the sulphates is complete, and to keep in hand the hydrogen sulphide evolved, by the use of colloidal zinc or zinc acetate.

On quite another matter, that of effluent disposal, Mr. Ramsden's comments are valuable in that they indicate the attitude which gas engineers ought to adopt—the attitude of co-operation with the local authorities. The precautions taken at Leamington to avoid offence are worth noting; and it should be borne in mind that conditions there are not particularly unfavourable. We are glad that the President so graciously acknowledged the help he has received from the Liquor Effluents and Ammonia Sub-Committee of the Institution of Gas Engineers. The work of that body, under the chairmanship of Mr. C. F. Botley, constitutes one of the finest pieces of research undertaken under the auspices of any industrial organization. A few years ago a great many gas undertakings were in serious trouble over the disposal of effluents. Thanks to the Committee's work, these troubles can be solved in co-operation with the sewage authorities. Among other questions of gas manufacture discussed were the buying of coal to specification and the storage of coal either in the open or under cover.

Turning to affairs on the district, Mr. Ramsden emphasizes that to-day nothing but the best fitting work should satisfy any gas supplier. To our mind the Gas Industry ought to pay much more attention to this phase of its service to the public. Smart and efficient fitting work is not by any means universal; ugly fitting work is regarded far too tolerantly. Money spent on training of fitters is wise expenditure, as every undertaking which has tackled this problem whole-heartedly well knows. In this connection it is with pleasure we notice that Mr. Ramsden attaches much value to the articles on fitting by Mr. LeFevre which have proved such a popular feature of the "GAS SALESMAN," and which, re-printed in booklet form, have circulated throughout Great Britain.

Both the Address and the discussion contain suggestions which should be carefully considered by our readers. The employment of women on maintenance work, reversion to the apprenticeship system, the avoidance of accidents—these are among the live topics brought under review. And as a final note to this pointer to the meeting of the Midland Association we would reinforce the observation that it is most desirable that members of the Gas Industry should support—and actively support—allied organizations, such as the Association of Public Lighting Engineers, and should take a live interest in local affairs.

Rating and Valuation

EXCELLENT as is the idea underlying the recent republication—in a consolidated and amended form—of the Eight Series of "Representations" of the Central Valuation Committee, it is unfortunate that these recommendations have not any statutory effect. The Committee was constituted under section 57 of the Rating and Valuation Act, 1925, for the express purpose of "promoting uniformity in, and removing inequalities from, the system of valuation for local rates," and that much has been achieved cannot be denied; but the inherent weakness of the plan whereby adherence to these resolutions cannot be enforced is exemplified in the case of *City of London Electric Lighting Company, Ltd., v. Southwark Assessment Committee*, which came before the County of London Quarter Sessions last year.

Subsequently to the agreement of the assessment at the quinquennial revaluation of the appellant undertaking in 1930—computed on the "profits basis" approved in *Kingston Union Assessment Committee v. Metropolitan Water Board*, 1926 (App. Cas. 331)—a sub-station was erected on a new site in the Borough of Southwark, and as it was only brought into use with the object of facilitating a change in the method of distribution and the future expansion of the Company, no appreciable increase in profits was anticipated during the remaining years of the quinquennium period. The total expenditure in connection with the new hereditament exceeded £30,000, and the rating authority made an assessment in the sum of £1,150 gross value in the 1932 Supplemental List. The Company lodged notice of objection, and contended that this should be reduced to £300 gross and a nominal rateable value of £50. The Assessment Committee confirmed the valuation placed upon the new sub-station by the Valuer acting on behalf of the Local Authority, and on appeal to Quarter Sessions this assessment was upheld, and it was ruled that the Borough of Southwark was entitled to a valuation on the "contractor's basis," notwithstanding that this would necessitate a corresponding reduction in the assessment obtaining in the adjoining parish of the City of London should an over-assessment (which was not admitted by the respondent Local Authority) be the result of this decision.

Turning to the specific "representations" of the Central Valuation Committee on this particular point, it will be noted that Paragraph vii. of Resolution No. 68 (passed at a meeting of the Committee on July 23, 1931) recommends that in such circumstances "any review of the *cumulo* or of the general apportionment during the quinquennium because of an extension . . . of any part of the undertaking occurring during that period should be avoided, as far as possible," and that "there should be no disturbance . . . unless and until the cumulative increases or reductions exceed an agreed percentage of the *cumulo* net annual value." The City of London case (to which reference was made on p. 42 of the "JOURNAL" for Jan. 3, in the course of a review of "Statute and Case Law of 1933") demonstrates only too clearly that, failing compulsory provisions, a public utility undertaking extending into two or more parishes is at a distinct disadvantage when a new building is erected during the quinquennium, as the only means of ensuring that the aggregate assessments in the various parishes shall not exceed the *cumulo* valuation is the costly and highly problematical course of making "proposals" under the Act of 1925 for the reduction of the assessments in those areas not affected by the new hereditament. In the case in point, it is understood that the adoption of this course was rendered impracticable, not only by reason of the heavy legal costs attendant on such appeals, but by the great uncertainty that any effective relief could be obtained until the new *cumulo* valuation is arrived at in 1935; and while a decision of Quarter Sessions is not binding on courts in other counties, there can be little doubt that public utilities in general are in much the same position (with regard to extensions which are in advance of immediate requirements, and, for that reason, not necessarily fully remunerative in the earlier years) as before the introduction of a scheme of uniformity in valuation which in other respects is of the greatest benefit to rating authorities and ratepayers alike.

While dealing with these "Representations," it is pertinent to remark that, assuming the contention advanced by the Valuer to the County Valuation Committee in the Ramsey Gas Company's appeal (referred to on p. 246 of the "JOURNAL" for Jan. 31) to be correctly reported, it is a great pity that it is open for any individual Valuer to advance (as has been done in several cases reported in these pages from time to time) proposals for the valuation of companies the basis of which has already been prescribed in outline by Act of Parliament and defined in the Metropolitan Water Board case.

It is necessary to add only that the appearance of this consolidated (and slightly amended) edition is to be welcomed as a further contribution towards the achievement of the main purpose of the Act of 1925—the equitable valuation of some 10 million properties with a total rateable value exceeding £200 million; truly a task of considerable magnitude. The gas, water, and other public utility industries comprise no small part of this total, and while it may be a matter of opinion whether a separate rating enactment specially applicable to such "extensive hereditaments" (as in the case of the Railways) would provide the much-desired equality of treatment, some steps should be taken to enable undertakings in the position of the City of London Electric Lighting Company to obtain without great expense and doubt the remedies intended by the Rating and Valuation Acts and the admirable recommendations made by the Central Valuation Committee.

Two-Part Tariffs for Slot Consumers

MORE than half, numerically, of our total consumers are now of the prepayment type, and many of them doubtless classified as unremunerative by the student of scientific charging. More than half of us are probably by now convinced by circumstances that new methods of charging must be adopted wherever, and as quickly as, possible as one of the most obvious ways of further popularizing the domestic use of gas. Yet we were faced with the pronouncement of no less authoritative a body than the Gas Legislation Committee, who in their second interim report stated: "We have given very considerable thought to the problem of the universal application of two-part tariffs to prepayment consumers, and have come quite definitely to the conclusion that the difficulties are so great as to render a practical solution impossible at the present time."

The difficulties which the Committee envisaged are clear enough. The essence of the contract with the prepayment consumer must be that he shall prepay; his circumstances usually make it difficult for him to prepay except in small amounts. In a two-part tariff the collection of the commodity charge would present no difficulty with the customary slot meter, but the service charge unit suitable in most parts would be payable weekly, and collectable only when the pay envelope came home. And what gas undertaking could contemplate the army of Saturday afternoon collectors which would be required?

"At the present time" was the conclusion of the extract of the Committee's report quoted above, but that was in January, 1933. Since that date a mechanical solution of the problem has been worked out, and it was inspected with very great interest in the Gas Section at the Fair recently. A description of the appliance and its working is given elsewhere in this issue. It is an extremely ingenious arrangement for attachment to the slot meter which enables a service charge of either sixpence or a shilling to be obtained weekly in advance, and in which the patentees and makers claim to have produced, after lengthy experiments, a device which fills every need connected with the automatic collection of a service charge. When tariffs are so rightly prominent in the minds of the Gas Industry, we invite investigation of this claim.

One word on costs. Those who have seen the mechanism and the workmanship on the controller

which essential reliability demands will not boggle at the cost of it regarded as a scientific instrument. On the other hand, the multiplied cost of supplying whole districts may at first sight cause dismay. But two-part tariffs, like everything else, must be " sold " to the public for the benefit which they will bring to the consumer, and, if payment is made easy, the public will pay for what it wants. It is an established and acceptable practice in many undertakings to sell even such appliances as cookers through a slight adjustment of the slot meter, and on the same principle a very few feet per penny on the commodity charge would probably be found to be enough to write-off the cost of the new automatic collector if, after investigation, cost was found to be the only obstacle to its adoption. Again we urge consideration of what we believe is the only mechanical solution so far offered of a problem which bars the road to progress.

PERSONAL

MR. JAMES ARMSTRONG.

Referring at the Annual Meeting of the Ilfracombe Gas Company to the resignation of Mr. Armstrong from the administrative office of Managing Director of the Company, the Chairman (Mr. R. M. Rowe) said that Mr. Armstrong was appointed a Director in 1919, in order to fill the position of Managing Director to which position he was appointed under the provisions of the Company's Act of 1915.

" How efficiently and conscientiously he fulfilled that office until he voluntarily laid it down in the fall of 1933," said the Chairman, " there is no need for me to emphasize. I am, however, convinced that the Company owes to Mr. Armstrong a debt of gratitude, incapable of expression by any words of mine, for his devotion, in season and out of season, in times of prosperity and in times of depression, not only for the period of his office as Managing Director, but for many prior years in a less ambitious but highly responsible position of service, extending, all told, to the long span of 27 years—the best slice of a man's life. When Mr. Armstrong was appointed Manager of the Company in 1906 the Company's output of gas was roughly 46 million c.ft. and the number of customers about 2,000. When in November, 1933, he tendered his resignation, the output exceeded 112 million c.ft., while the number of customers bordered on 3,500.

" Mr. Armstrong was substantially responsible for this consistent growth of the Company's business. You could not therefore have been surprised to read in the Directors' Report that in recognition of his long and arduous services —and I may add, in order that the Company may retain the advantages of his ripe experience and exceptionally sound judgment—a proposal would be made to you, and it will be submitted by me, that Mr. Armstrong be elected to the office of an ordinary Director of the Company. In this action I am confident I shall be reflecting the unanimous wish of the stockholders, and I shall also be expressing to the full the extreme pleasure of myself and of each of my colleagues on the Board. Before passing from this part of my speech I desire to say that the Directors under the provisions of the Company's recent Order have granted Mr. Armstrong a well-deserved and suitable pension which they hope he will live long to enjoy."

We are extremely pleased to know that since his election to the Board of the Ilfracombe Gas Company, Mr. Armstrong has been appointed Deputy-Chairman.

OBITUARY

SAMUEL SADLER FIELD.

The death occurred on Feb. 16 of Mr. S. S. Field, for many years Manager of Ordnance Wharf, South Metropolitan Gas Company. The following is taken from the Company's *Co-Partnership Journal:*

Mr. Field was born at Oldbury in the year 1859. In his early twenties he was already engaged at the management of tar works, and about the year 1883 went to Ordnance Wharf, where, it would be but little exaggeration to say, he built the tar distillery. In 1903 the works were acquired by the Company, and Mr. Field continued as Manager, the post that he held until his retirement in the autumn of 1920. During the early years of the Company's ownership, he and his staff had the great responsibility of building-up the traditions of the South Metropolitan Gas Company in the coal tar industry. Under his leadership, the reputation of the Company was firmly established, and its tar products were characterized by such reliability as to gain the trust of customers at home and abroad.

The word " leadership," rather than " management," is a true description of Mr. Field's method. He could be stern in discipline when necessary, but he ensured the loyalty and best efforts of his people by leadership and personal example. He trusted his staff implicitly, and that trust was rarely, if ever, abused.

At the age of sixty-two he retired, enjoying his time chiefly in this country, but occasionally on the Continent, until about three years ago, when he underwent an operation from which he seemed never entirely to have recovered. He died on Feb. 16, at Eastbourne, and was buried in Charlton Cemetery on Feb. 20.

Correspondence

Gas Fire Flue Openings.

SIR,—Will you please allow me a few lines in your correspondence columns to draw attention to what in some respects is rather a small matter but one which is liable to cause friction between suppliers and consumers of gas.

I refer to the cast spigot end of the flue provided on gas fires. Due to the apparent absolute disregard of the makers of these appliances to the question of standardization of sizes it is often necessary to delay the fixing of such an appliance for three or four weeks while a special adapter in non-corrosive material is made.

Of five 7-radiant fires taken at random in our showroom every one had a different sized flue opening from any of the remaining four.

Surely it would be an easy matter to standardize this item on all fires according to number of radiants.

Yours, &c.,
" NORTHERN GAS ENGINEER."

March 7, 1934.

Low-Temperature Carbonization in Scotland.

SIR,—You never miss anything that is really good, and your reference to the above (last issue, p. 609) only emphasizes the fact. Look at this history:

(1) Glasgow Gas Committee has been using experimentally a plant to produce 200 gas and low-temperature fuel for several years, and at length decided to scrap it—£40,000 and more gone west.

(2) Nuneaton has been producing 200 gas, and distributing it for town's purposes regularly, together with low-temperature fuel, for several years. This 200 gas is thoroughly purified.

(3) The Scottish Gas Utilities Corporation at Glenboig has started to produce and distribute 200 gas for industrial purposes, together with low-temperature fuel. This 200 gas does not appear to be purified.

Is not this truly wonderful to those who understand it?

Yours, &c.,
GEORGE HELPS,
Engineer, Manager, and Secretary.

P.S.—I wish this Scottish venture great success—they might supply Glasgow Corporation with 200 gas if they purified it, and sold it at about one penny per therm.—G. H.

Nuneaton Gas Company,
March 8, 1934.

THE NEWS OF THE WEEK

The " Daily Mail " Ideal Home Exhibition, which as usual is to be held at Olympia, opens on April 3.

Orders Valued at £100,000 have been taken by the exhibitors in the Joint Gas Section at the British Industries Fair at Castle Bromwich.

Great Public Interest has been aroused by an exhibition of the latest appliances for cooking, heating, and lighting by gas arranged by the Folkestone Gas and Coke Company at the Leas Pavilion, Folkestone.

Sale of Gas Shares.—A block of shares in the Kidderminster Gas Company, yielding 5% per annum, was recently offered for sale in lots of £300. The bids started at £90, and there was spirited bidding, and they were all sold at £120%.

Manchester District Association.—The 64th Annual Meeting of this Association will be held at the Midland Hotel, Manchester, on Friday, March 23, at 2.30 p.m., when, following the usual business meeting, Mr. F. G. Shaw, of Buxton, will deliver his Presidential Address.

Southern Association.—The Annual General Meeting of the Southern Association of Gas Engineers and Managers will be held at the Hotel Metropole, Northumberland Avenue, W.C. 2, on Tuesday, March 27, when Mr. S. Lacey, of the Gas Light and Coke Company, will read his Presidential Address.

Broadwey's Public Lighting.—At a meeting of the Weymouth Town Council there was a debate on the public lighting of Broadwey, which is to be carried out by electricity. Strong protest was made by Mr. P. Lovell, who pointed to the unfairness of not allowing the Gas Company to compete for the contract.

A Special Committee appointed to consider the matter has decided to recommend the Sunderland Town Council favourably in regard to purchasing the undertaking of Sunderland Gas Company and to request the Gas Company to appoint representatives to discuss the proposal with representatives of the Town Council.

Increased Gas Sales at West Bromwich.—The quantity of gas sold in West Bromwich during the quarter ended Dec. 31 last was 128,973,282 c.ft. (including 13,853,592 c.ft. used for public lighting), this being an increase of 2,320,212 c.ft. compared with the corresponding quarter of the previous year. The amount of gas rental in respect of last quarter's consumption was £20,755—an increase of £286 compared with the figure of the same quarter in 1932.

Their Plant at North Shields will be shut down by the Newcastle-upon-Tyne and Gateshead Gas Company during the summer months, when coke oven gas from an outside source will be supplied. About 60 or 70 men will be affected, but work will be found for a few, and the Company will compensate the others. The plant will be reopened during the winter. Under a contract made in 1927 the Company will have to take a greater quantity of gas this summer.

A Successful Exhibition was held by the Tipton Gas Department from March 6 to 9. An excellent lighting display was staged by Messrs. Falk, Stadelmann, & Co., Ltd., Birmingham. At the opening ceremony the chair was taken by Councillor W. A. Robbins, Chairman of the Gas Committee, while the exhibition was declared open by Councillor W. J. W. George, Chairman of the Tipton Urban District Council, assisted by Mr. W. Williams, Gas Engineer and Manager.

Great Interest Is Being Taken in Hereford in cookery demonstrations staged by General Gas Appliances, Ltd., at the showrooms of the Hereford City Gas Department. The demonstrations, arranged for the afternoons and evenings, commenced on March 6 and terminate on Friday next. Cookery demonstrations are being given by Miss I. W. Sketchley, M.C.A., on the " Governor General " oven, special attention being drawn to the automatic heat regulator which enables a whole meal to be cooked in the oven at once. Other exhibits are the " Resident General " oven, the " Immersion " heater, and various water heaters and gas fires.

From Camera to Photograph Album.—Behind the scenes in the photograph trade gas plays an important part, as may be learned from a perusal of the latest issue of " A Thousand-and-One Uses for Gas "—" Up-to-date Gas Equipment for Photographers and Developing and Printing Establishments "—published by the B.C.G.A. The booklet, which is fully illustrated, should appeal both to the professional photographer and to the amateur who does his own developing and printing.

A Post-Card Poll is to be taken of the ratepayers of Combe Martin, the small North Devon holiday resort, to decide whether the public lighting shall be by gas or by electricity. The Electric Company offered to maintain and light lamps in their present position in the place for £275 a year. The Ilfracombe Gas Company were prepared to light and maintain 90 lamps for £225 a year, and convert free of charge 13 petrol lamps to gas. The Committee, by a majority, recommended the acceptance of the Gas Company's tender, but it was decided to take a post-card poll to settle which tender should be accepted.

Gas Propaganda in Switzerland.—With the object of counteracting the activities of electrical interests in Switzerland, the " Usogas " Association, of Zurich, which acts as a representative of the eighty odd gas undertakings in Switzerland, has recently issued a booklet drawing attention to the many advantages of gas, and to the value of the Industry to Switzerland from the economic point of view. In addition to the use of gas for lighting and heating purposes, attention is drawn to the many useful bye-products of the Gas Industry and particularly to its ability to supply coke for the numerous industrial uses for which that fuel is at present being largely imported.

The Leamington Priors Gas Company have announced to their customers that they have been able to arrange for Mrs. Olive Roberts, C.D.S., to give a series of demonstrations in the best use of the gas cooker at their Regent Street Showrooms which commenced on Tuesday afternoon, March 6, and finishing Saturday afternoon, March 17. Housewives are invited to send post-cards immediately to the showrooms, mentioning any problem in connection with gas cooking on which they would like advice or any dishes which they would like Mrs. Roberts to include in her demonstrations. A meter shows how much has been spent on the gas for each particular demonstration.

Gas Undertakings Bill.

Second Reading in the House of Lords.

On Thursday afternoon last, the new Gas Undertakings Bill (which was summarized in our editorial columns on Feb. 28, and is the subject of a full explanatory article on other pages of this issue) came up for second reading in the House of Lords.

Lord TEMPLEMORE, in moving that the Bill be read a second time, explained that it had been drafted largely to give effect to the unanimous recommendations made in the reports of the Gas Legislation Committee (a Committee generally known as the Wrottesley Committee), which was appointed by the President of the Board of Trade in 1931. The fundamental Acts upon which the powers of statutory undertakings were founded were the Gas-Works Clauses Acts of 1847 and 1871. This somewhat old legislation had, on the whole, operated extremely satisfactorily, but, as a result of development in the Industry, and of the changed conditions which had had to be met, this legislation had in some respects become inadequate. He referred to the representations on behalf of the Industry, through the National Gas Council, as long ago as 1926, urging that fresh amending legislation should be introduced at an early date. These representations were referred to the National Fuel and Power Committee, with the result that the more simple of the proposals approved by this Committee were given effect to by the Gas Undertakings Act, 1929; the others being left over for further detailed examination.

In the present Bill, all the recommendations of the Gas Legislation Committee, subsequently appointed, which re-

THE NEWS—continued.

quired legislation had been dealt with with the exception of two. The first of these was that gas undertakers should be empowered to impose a minimum quarterly charge upon consumers; and the second that, where an application for a Special Order was unopposed, it should not be necessary to lay the Order in draft before both Houses of Parliament and obtain approval, but that the Board of Trade should make the Order and then present it.

His Lordship went on to point out that the necessity of freeing the business of gas supply from restrictions which, though possibly necessary when the Industry was in a monopolistic position, was to-day but a handicap to efficiency, had long been represented on all sides.

The EARL OF ONSLOW (Chairman of Committees), seconding the motion, remarked that this was one of those useful Bills that furthered local legislation by embodying clauses which had been introduced for some time past into Private Bills. This was a method by which local legislation had been usefully developed for many years.

Lord MOUNT TEMPLE agreed that it was necessary that some legislation should be passed in order to enable the gas undertakings to compete on more equal terms with electrical undertakings. It had been his privilege some years ago to pilot a Bill through the House of Commons to give more liberty and more advantages to the electrical undertakings. One felt at that time that the gas undertakings were under a very substantial disability compared with electrical ones. The present Bill did not give to the gas undertakings all that they were really entitled to, but, at any rate, it did go a good way in helping them to carry on their business more expeditiously and with greater economy.

The Bill was then read a second time and committed to a Committee of the Whole House.

A Pending Amalgamation.

In his address as Chairman at the annual meeting of the Weston-super-Mare Gaslight Company, Mr. Henry Butt, J.P., explained that the Board of Trade had approved of the Order applied for by the Company to take over the Cheddar Gas Company, Ltd., and they would soon have the undertaking in their own hands.

Then, in November last the Company had applied to the Board of Trade for an Order to take over the Burnham Gas Company, Ltd., and the Highbridge Gas Company, Ltd. The matter had gone through without opposition, and they hoped that shortly these undertakings would be amalgamated with their own.

Easily Pleased Electrical "Fans."

Commenting upon the failure of the electricity supply at Newport (Mon.) recorded in last week's "JOURNAL" (p. 605), a leader writer in the *South Wales Argus* says: "Only when we are plunged into darkness do we appreciate the light. When the electric light fails—as it did at Newport—confusion reigns in house and street. Fortunately, the men responsible for the regularity of our electric supply are masters of their jobs. While the consumer is making a frantic search for candles, we may be sure that the electricians are working even more feverishly to restore order. An electrical breakdown deserves to rank with those enjoyments collectively called 'the spice of life.' It does us good to have our equanimity disturbed now and again."

This reminds one of an old saying to the effect that "what is fun to the boy may be death to the frog." An electrical failure in the operating theatre of a hospital—how many have been recorded?—may be anything but the "spice of life."

Mr. Therm's Campaign Against Tepid Taps.

A New Gas Light and Coke Company's Booklet.

"The water's cold!" What a host of minor domestic squabbles and upsets lie behind those three words! The struggle to clean greasy dishes with tepid water. The disappointment of going tired into the bathroom and turning that liar of a "hot" tap! Days badly begun because someone was condemned to shave in luke-warm water! And then think of the times you go without *any* hot water on tap because you don't want to light the range or whatever fire heats your hot water system.

Such a state of affairs Mr. Therm sets out to remedy with the help of a little booklet recently published by the Gas Light and Coke Company. This booklet tells how Mr. Therm, still on the trail of household troubles, has solved the hot water problem by means of five distinct types of water heater.

This publication illustrates and describes in a bright and breezy manner these five different ways of obtaining constant hot water in the home—the large capacity storage heater, the multi-point apparatus, the circulating gas boiler, the single-point instantaneous geyser, and the similar smaller sink or basin water heater.

As a guide to those who experience trouble with their existing hot water systems, the booklet lists four of the major difficulties which Mr. Therm can put right quickly and efficiently; these are:

(1) You can't always get hot water when you need it.
(2) It isn't really hot enough.
(3) You need running water in more rooms.
(4) Your hot water supply is dependent on some fire—kitchen range, boiler or dining-room—that sometimes you don't want to light.

Altogether a very fascinating and useful little booklet which should do much to stimulate public interest in gas for domestic water heating purposes.

Costly German Coal.

Adds to the Trials of Irish Railways.

Sir Walter Nugent, Chairman, at the meeting in Dublin of Great Southern Railways (stated the *Financial Times*), said the live-stock traffic had been disorganized by the imposition of British tariffs, and in this branch of their business a further decrease in receipts of £18,421 was recorded.

The Company's continued use of German coal, he added, had in a number of cases seriously affected the running of passenger and goods trains, delays being frequent and fire bars getting fused and burnt out. All of this tended to increase the operating cost.

Unified Control in the West.

Allotment of South-Western Gas Corporation Shares.

The Directors of the South-Western Gas Corporation, stated the *Financial Times* of March 7, have allotted fully paid shares as part consideration of the purchase price of important companies operating in Cornwall and Devon.

Acceptances of the offer have been received from over 90% of the shareholders of the constituent companies, with the exception of one, where the acceptances represent 86·8%.

Other properties are expected to be brought into the group in the near future.

Two-Part Tariff at Lurgan.

Lurgan Urban Council has adopted the recommendation of Mr. W. Tallentire (Gas Manager) to introduce a two-part tariff with a fixed charge of 2s. 6d. per quarter for each room, and that all gas consumed should be charged at a rate of 2s. per 1,000 c.ft. He submitted figures showing the results of experiments.

The Chairman (Mr. Herbert C. Malcolm) said the experiments worked out favourably for the consumers and the Council. He believed it would be an inducement to gas consumers, and tend to increase consumption.

Hull Cricket Club Dinner.

Mr. Copp Pays Tribute to the Late Mr. J. Young.

The annual dinner of the Cricket Club of the Hull Station of the British Gas Light Company, Ltd., was held at the Broadway Hotel, Hull. Mr. Harold E. Copp, the Engineer, presided, and among those present were Messrs. A. J. Mumford (Secretary), F. C. Robinson and R. A. Weston (Joint Assistant Engineers), E. Scholey (Chief Clerk), H. Lawton (District Superintendent), G. Braithwaite, and E. W. Bonsey (Deputy District Superintendent).

Mr. Harold E. Copp submitted the toast of "The Chairman and Directors of the Company."

They were gathered under a shadow, he said, as they had lost their very great friend, Mr. John Young, their retired Engineer and Manager, who was known personally to all those present. The late Mr. Young, he said, was one of the originators of the Cricket Club and Mr. C. W. Appelbee (Secretary) had assisted him. Through their help the Club had gone from strength to strength and had set an example to the sports instinct of the city for many years.

He felt the spirit of sportsmanship was more than half

the battle of life. If they displayed the team spirit in industry it would not flag. A sense of humour was also a wonderful help.

"The British nation has a sense of humour which has carried it over many difficulties, and I think that our spirit of sportsmanship as a nation, which can be typified by cricket, is of more importance than any other spirit to exercise," Mr. Copp concluded.

New Benzole Plant at Stoke-on-Trent.

At the Etruria Works of the Stoke-on-Trent Gas Department there will soon be finished a complete benzole washing, crude benzole recovery, and rectification plant. The site at the works has been found admirably suitable for the installation of the plant and already there is flowing to the storage tanks 1,200 gallons of crude benzole a day. Refined benzole will be produced in the very near future. The storage tanks have a total capacity for 81,000 gallons, there being nine tanks each with a capacity of 9,000 gallons.

The work of erecting this plant has been entrusted to Messrs. W. C. Holmes & Co., Ltd. The erection of the buildings to house the plants and the various storage tanks was undertaken by the Gas Department.

The new plant has a capacity of 200,000 gallons of refined benzole. In regard to distribution, the proposal is to secure 1,000 gallon road and rail tanks for transporting the spirit to large users, while for small users there is already installed at the gas-works at Etruria a pump similar to those which form part of the equipment of all garages.

The benzole is being sold at the following rates: For quantities up to 200 gallons, 1s. 2d. per gallon; between 200 and 500 gallons in one consignment, 1s. 0½d. per gallon; over 500 gallons in one consignment, 1s. per gallon, at works in buyers' receptacles.

Edinburgh Deputation to the Continent.

At a meeting of the Edinburgh Town Council the Streets and Buildings Committee reported that they had had under consideration a letter from the Association of Public Lighting Engineers intimating that a visit of the Association would be made to Paris, Brussels, Antwerp, and Ostend on March 29 to examine the street lighting, and asking that the Corporation should appoint representatives. By a majority, the Committee recommended that Mr. Milne, Chairman of the Streets and Buildings Committee; Mr. Ritchie, Convener of the Lighting Sub-Committee; and the Inspector of Lighting and Cleansing be appointed to act as members of the deputation.

The Committee's recommendation was carried by a large majority.

European Gas Company, Ltd.

The report of the Directors of the European Gas Company, Ltd., for the year ended Dec. 31, 1933, to be submitted to the members at the Ordinary General Meeting to be held in the Middlesex Room, Great Eastern Hotel, Bishopsgate, London, E.C., on Tuesday, March 20 next, states that although trade and industry in France showed little sign of improvement during the year, the Directors are able to report that the quantity of gas sold was the highest recorded in the history of the Company; the increase over the previous year was at the rate of 1·89%. At the same time there was a substantial improvement in the figure of gas unaccounted for, which was better than in any year since 1922. The number of consumers rose from 162,441 to 165,600, a gain of 3,159, or at the rate of 1·94%.

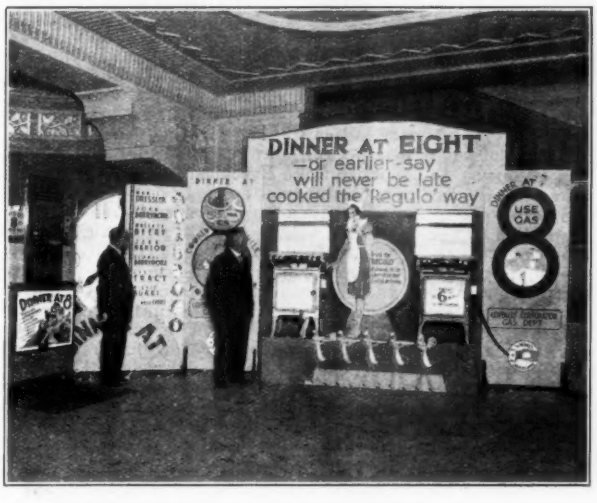
After meeting all charges, and making provision for French and English taxation and for renewals and replacements, the profit on the year's operations amounts to £64,022 16s. 1d. An interim dividend at the rate of 2½% was paid in September last, and the Directors now recommend that a final dividend of 3½% be paid, making a total of 6% for the year, free of income-tax, and that the balance of £3,892 0s. 1d. be carried to general revenue. The works, plant, and mains in France were maintained, and the necessary work of repair and replacement carried out. The new 3-lift holder of a capacity of 12,000 cub.m. at Caen was completed and put in action. At Havre a site was acquired in a central position for the construction of a new showroom and offices. Satisfactory progress was made with the construction of the new works at Roche Maurice, Nantes, and it is anticipated that the manufacture of gas will be commenced early in 1934. A concession was obtained for the supply of gas in the Commune of Ambleteuse, near Boulogne, until 1970.

The retiring Directors are Mr. A. M. Paddon and Mr. S. H. Le Roy-Lewis, and they, with the Auditors, Mr. B. Dennett Holroyd and Mr. D. M. Touche, being eligible for re-election, offer themselves accordingly.

In accordance with the powers conferred upon them by the Articles of Association, the Directors have elected Mr. F. Eliot Williams, O.B.E., who has been General Manager and Secretary since 1919, to a seat on the Board, and have appointed him Managing Director. The stockholders will be asked to confirm his election. Mr. T. H. Martin, Assistant General Manager, has been appointed Assistant General Manager and Secretary.

"Dinner at Eight."

In connection with the film "Dinner at Eight" which was shown last week at the "Gaumont" Picture Palace, Coventry, the opportunity was taken of securing an effective boost for cooking by gas.



Permission was given to the Coventry Gas Department to stage an exhibit in the large entrance hall of the Palace, and one of our two photographs shows the Chairman of the Gas Committee (Councillor George E. Roberts) inspecting the 20 ft. display.

In return, the Department arranged a dining room in one of their showroom windows advertising "Dinner at Eight" cooked by gas. The lay-out is shown in the top photograph.

A four-course dinner was cooked in the showroom in a "New World" cooker. This took the form of a cookery demonstration, and punctually at 8 o'clock the dinner was served to a lady and gentleman seated in the showroom window.

The proceedings proved a great attraction and some difficulty was experienced in dealing with the large number of interested spectators.

The Department has already been amply repaid for its efforts by the largely increased sales of gas cookers which have since ensued at this particular showroom. In addition, much useful publicity was secured in the local Press.

THE NEWS—*continued.*

Lectures to Sheffield Company's Outdoor Staff.

Co-Operation with Local Plumbers.

The fifth of a series of lectures to distribution employees of the Sheffield Gas Company was held at the chief showrooms of the Company on March 9. Over 60 employees were present to hear a lecture by Mr. Arthur Forshaw, M.Sc., Chief Chemist of Messrs. R. & A. Main, Ltd., on the design and construction of gas appliances.

The remarks by Mr. Forshaw were interspersed by an interesting cinema display, showing various phases in the manufacture of these appliances, and at the conclusion of the lecture a live discussion took place.

It is interesting to note that in order to foster closer co-operation with the private plumbers in the area, invitations are issued inviting the attendance of the heads of these firms or their representatives, and this has undoubtedly proved a very successful innovation.

Employees' Long Service Records.

An interesting event took place on March 8 at the Wellington Tube Works, Ltd., Great Bridge, when the Chairman, Mr. Douglas W. Turner, presented an illuminated address and a purse of money, subscribed by the Directors, staff, and employees, to Mr. Edward Small, upon the completion of 50 years' uninterrupted service. During this period he has had the distinction of being late on only one occasion, on account of fog.

This is the third occasion within the last three years that similar presentations have been made, the two other recipients being Mr. Tom Groves and Mr. Jack Austen. There will shortly be two more with a similar service record, Messrs. Tranter and Stevens.

This does not conclude the service records of the employees of this Company, as in January of this year, Mr. John Stanton was following his usual occupation as a furnace builder on his 90th birthday—and this in spite of the fact that some years ago the Company had insisted upon his retiring with a pension, which he would not accept unless he was allowed to continue with this work as and when it was required.

Coke Research in Scotland.

At a meeting of the Scottish Branch of the Institute of British Foundrymen held in the Royal Technical College, Glasgow, on March 10, some of the work of the Scottish Coke Research Association was described by the Research Officer, Mr. William Davidson, B.Sc., A.I.C.

Mr. Davidson, after indicating the advances made in the methods of coke production, described briefly the work carried out by the Scottish Coke Research Committee to improve the quality of metallurgical coke.

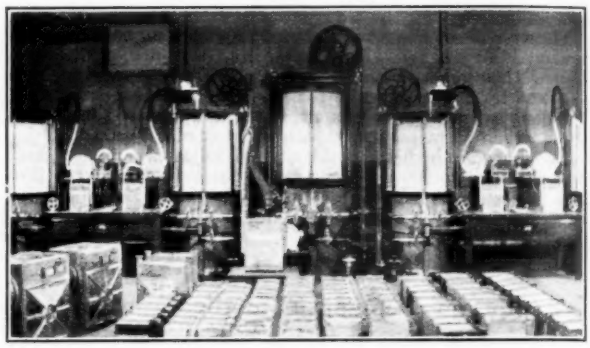
Special attention was given to the correlation of the properties of the coals and blends with those of the corresponding cokes. Mr. Davidson pointed out that Rose had shown that there was a relation between the total volatile matter content and the nature of the coke obtained from a coking coal. Coals having high volatile matter contents gave highly fissured cokes, while coals low in volatile matter gave blocky cokes with comparatively few fissures. In dealing with this matter, the lecturer said that it was during the period subsequent to the plastic range that the fissuring of the coke took place, and that the degree of fissuring should be related to the percentage of volatile matter evolved during this period. Accordingly it was thought that by comparing the volatile matter contents of the coals after heating to the temperature of the end of the plastic range, a more accurate correlation would be obtained. A series of blending experiments had been conducted, and it was shown that when the volatile matter retained by the coal at the end of the plastic range was diminished a less fissured coke was obtained.

From this study an interesting observation had arisen. When finely ground materials of low volatile content such as high-temperature coke or anthracite were added to the blend a reduction of the volatile matter at the end of the plastic range was effected. This reduction was accompanied by an increase in the size and resistance to shatter of the resultant cokes, provided that the limits of size and percentage addition of the blending materials were not exceeded. The relationship observed between the volatile matter contents of these blends and the resistance to shatter of the cokes made from them was also found to occur in the case of binary blends of coking coals and their cokes.

Cupola Testing of Cokes.

In dealing with the use of Scottish cokes in foundry work, Mr. Davidson said that the quality of several Scottish cokes had been improved to such an extent that Durham coke was being replaced by Scottish coke in Scottish foundries. A series of cupola tests, carried out to compare the melting efficiencies of a Scottish with a very good Durham foundry coke, was described. These tests were made in three ordinary types of cupola, having internal diameters of 39 in., 45 in., 60 in., in a balanced blast cupola of 54 in. diameter and in a Poumay cupola of 51 in. diameter. In the ordinary types of cupola no difference was observed between the melting efficiencies of the Durham and Scottish cokes. For the balanced blast cupola a lower metal-coke ratio was obtained for the Scottish coke than for the Durham, but this was due to the fact that an increase of 4·6% in the carbon monoxide content of the top gases occurred when Scottish coke was used. It was suggested that this could be corrected by re-opening the top row of tuyeres which had been found unnecessary when Durham coke was used. The tests made with the Durham and Scottish cokes in the Poumay cupola showed that slightly higher metal-coke ratios were obtained when the Durham coke was used.

Meter Testing Station at Exeter.



Our photograph, which was taken by Mr. E. M. Foster, Statutory Meter Inspector, shows the Exeter Meter Testing Station lighted by gas. The Association of Statutory Meter Inspectors will visit Exeter for their annual conference in July next.

Salters' Institute of Industrial Chemistry.

Applications are invited for a limited number of Fellowships available for chemists of post-graduate standing. The object of the Fellowships is to afford additional and special training at home or abroad preparatory to a career in industrial chemistry. The course to be followed will in each case be decided by the Director, Prof. Arthur Smithells, in consultation with the Fellow. The value of a Fellowship is normally from £250 to £300, but the Institute is prepared to consider applications which might justify the award of Fellowships of higher value.

Applications should be received by the Director of the Institute, Salters' Hall, St. Swithin's Lane, London, E.C. 4, on or before May 1.

Tax on Heavy Oils.

The Parliamentary Secretary to the Mines Department, we learn from *The Times*, received on Thursday last a deputation from the Coal Utilization Council, which urged the continuation of the tax on heavy oils and a reconsideration of the licence duties and restrictions on road vehicles driven by steam or compressed gas. Mr. R. Forrester, a Vice-President of the Council, introduced the deputation and Mr. W. R. Gordon, the Director, presented a detailed memorandum.

Mr. Gordon stated that the coal industry was already benefiting to the extent of over 600,000 tons a year from the operation of the tax on fuel oil. Every ton of foreign oil replaced by coal meant that a British miner had been taken off the dole and restored to work and wages for a day and a half. He mentioned a number of important industrial and commercial concerns which had recently decided to use solid fuel and referred also to the replacement of oil by creosote in many engineering works and its use for the heating of shops and offices. Moreover, gas and electricity would, he said, be used in future instead of oil by a number of public authorities and private firms.

With regard to the taxation of road vehicles driven by compressed gas the deputation stated that experiments with both coke oven gas and town gas encouraged the hope

of a considerable new market for British coal. Comparative running costs as between gas and petrol were greatly in favour of gas, and it was estimated that gas could be supplied compressed at a price equivalent to petrol at 7·9d. a gallon. As, however, the compressed gas must be carried in steel cylinders, and as the taxation was levied on the unladen weight, the effect was to penalize the gas-propelled as against the petrol-driven vehicle and to offset any advantage conceded to the heavier types in the Finance Act of last year. The deputation asked that the weight for taxation purposes should be the weight of the vehicle less the weight of gas cylinders and connections. Electrically-driven vehicles were allowed to deduct the weight of their batteries.

The deputation included representatives of the British Electrical Development Association, the National Gas Council, the low-temperature tar distillers, the London and Home Counties Coke Association, the Coal-Burning Appliance Makers' Association, the creosote producers, and the makers of steam road vehicles and of compressed gas cylinders.

Raw Bituminous Coal in New York.

Many people in Britain are under the impression that the burning of raw bituminous coal is prohibited by law in New York City, and that it is therefore a paragon in a polluted world.

"Stop that Smoke" is a new book by Henry Obermeyer (published by Harper Brother, New York and London; price in this country 10s. 6d. net). In it the author explains that the American public also labours under this misconception. However, he says, there is no such law upon the books. A former Health Commissioner declared, "We cannot conceive a law so drastic that it would attempt to regulate the type of fuel to be burned, owing to the fact that the reasons controlling coal consumption are too varied and subject to too many outside forces that are difficult to control."

Oil from Coal.

Help for New British Industry.

The British Hydrocarbon Oil Production Bill was considered on Report in the House of Commons on Wednesday last.

On Clause 1 (Preference for home-produced light oils),

Mr. Batey (Spennymoor, Lab.) moved an amendment to secure that the oils should be manufactured under State ownership and control. He said that without such ownership and control there was no hope of better wages or increased employment for the miners.

Mr. T. Smith (Normanton, Lab.) seconded.

After debate,

Mr. E. Brown, Secretary to the Mines Department (Leith, L.Nat.), said that the amendment was not a practical proposition. The State had no rights in the patents and the nation had taken no risk in regard to these processes. Those risks had been taken by private enterprise, and even from their own point of view he would have thought that the last type of undertaking which the Labour Party would wish to see nationalized in an experimental stage was an undertaking of this kind, where so much depended on research and the particular type of individuals who handled the processes.

The amendment was negatived by 162 votes to 29—Government majority, 133.

The Report stage was concluded, and the Bill was read the third time.

Uneconomic Competition.

A Clearer Perception of the Value of Gas.

Reference to a welcome awakening to a clearer perception of the value of gas, as indicated by the increasing efforts to boost electricity—including an expenditure of £1,000,000 for propaganda—was made by the Chairman of the Isle of Thanet Gas Light and Coke Company (Mr. Walter Hills) in the course of his address to the proprietors at the annual meeting of the Company recently.

"Your Directors are following with sympathetic interest," he said, "these efforts, which seem to indicate a clearer perception of the relative superiority of gas for domestic and other purposes—the marked degree in which it maintains its strong position—frequent recognition of the willing and efficient service rendered in all departments—and that every need or difficulty of consumers, intimated on a postcard, receives immediate attention.

"It is suggested, and prevailing conditions strengthen the rumour, that the very natural expectation of our competitors, created by the introduction of the disfavoured and—as it now appears—defective grid, is slowly diminishing, and that, in addition to the enormous expenditure of over £30,000,000—obtained, as you know, on credit with the Government's guarantee—large sums will still be required to remedy defects, and the repeated failures of the supply since the grid came into operation have caused the gravest misgiving concerning this elaborate and costly system. We cannot therefore be unmindful of this supreme effort being made by the Electricity Development Association throughout the whole country, with offers of increased facilities, such as free wiring, abolition of rentals, and other fatuous methods to overcome their difficulties and induce a greater use of their commodity."

Chaseside Mobile Loading Shovels.

The results of the introduction by the Chaseside Engineering Company, of Enfield, some years ago of their mechanical shovel, have borne out their contention that there is a wide market for such an appliance—built not for excavation work but for loading purposes only—which is comparatively inexpensive to buy, cheap to operate and maintain, and so simple to work that any inexperienced man can be safely left in charge after a very short period of tuition.

Chaseside Mobile Shovel in Operation at Belfast Gas-Works.

The Chaseside mobile loading shovel was originally produced in two models—the "Hi-Lift," which will tip its load at any height up to 9 ft., and the "Lo-Lift," which tips at a maximum height of 3 ft. 6 in. These shovels will load into lorries, railway wagons, or feed hoppers at a rate of from 5 to 40 tons an hour dependent upon the weight per cub. yard. of the material lifted and the distance to be traversed between loading and tipping, materials such as coke, coal, oxides, broken stone, &c., being speedily handled. The shovels are driven by an internal combustion engine using petrol or paraffin as fuel.

There are two types of the new "Hi-Lift" model A shovel, the main difference being the alternatives of solid or pneumatic tyres and the provision of a ¾ cub. yd. or ½ cub. yd. scoop. The whole machine is foolproof and very sturdily built, being easily manœuvrable and able to travel at 10 m.p.h.

Stand Against Colliery Amalgamation.

In response to a summons issued by the Coal Mines Reorganization Commission, representatives of Warwickshire coal owners attended before the Commission in London last week. We are indebted to the *Financial Times* for the following information:

The Commission recently prepared a scheme of amalgamation for Warwickshire, but ten of the fourteen companies concerned refused the agents of the Commission the facilities necessary for obtaining information. As a result the chairmen and secretaries of the companies involved were summoned under the Tribunals of Inquiry Evidence Act to attend before the Commission and bring with them the information and documents needed.

Sir Ernest Gowers, the Chairman, intimated that the companies had been supplied with a list of questions. They

THE NEWS—*continued.*

proposed to adjourn the inquiry in order to resume it after a reasonable interval, and then have before them representatives of these ten companies in order that they might give them information orally and supply any document their experts might find necessary.

Mr. F. J. Wrottesley, K.C., who appeared for the ten colliery companies, made a formal application for the postponement of the inquiry until they had all had an opportunity of hearing what the Court decided upon the first application of the kind.

If amalgamation were forced on the district it would probably mean closing down the less economic collieries, and they had reason to believe that must of necessity involve them in difficulties with labour.

In view of the nature of the questions which the colliery companies would be asked it was agreed that the Commission should resume its deliberations in private on May 1, continuing to May 2, if necessary.

Rising Coal Output.

Coal output for the fourth quarter of 1933 was 55⅝ million tons, or 8½ million tons more than during the previous quarter and over 1,000,000 tons more than in the corresponding quarter of 1932. It was 1¼% less than the allocation made by the Central Council under the Central (Coal Mines) Scheme, 1930.

The increase in production over the corresponding quarter of 1932, following a similar increase in the previous quarter, represents a real improvement in the position of the industry, says the *Board of Trade Journal*. It must be borne in mind that results during the first half of 1933 were substantially worse than in the first half of 1932.

Proceeds from the sale of coal disposed of commercially during 1933 (representing 92% of the tonnage raised) were about 13s. 7d. per ton at the pit, or 3d. less than during 1932. The average declared value of all coal exported in 1933 was 16s. 1d., or 2d. less than in 1932.

For the first seven weeks of this year the production of coal has increased by over 1,500,000 tons as compared with the corresponding weeks in 1933.

Vitreous Enamellers to Organize.

Founding Committee Appointed at Birmingham.

A meeting of representatives of various firms engaged in or connected with the vitreous porcelain enamelling trade was held at the Birmingham Section of the British Industries Fair on Feb. 28, in order to consider the desirability of forming an organization for this section of the metal industry.

There was a good attendance, including firms interested in gas and electric stove manufacture, the hollow-ware and sign trades, and firms engaged in enamelling for the cast-iron and sheet-metal trades generally.

Mr. W. H. WHITTLE (Protector Lamp and Lighting Company, Ltd., Manchester) was voted to the chair. Enamelling, he said, was by no means a small trade, and it was a highly technical business. It was one of the few technical trades not yet represented by some society or institution.

Mr. J. T. GRAY (Messrs. J. Gray & Sons, Ltd., London), who organized the gathering, was then called upon, and said this informal meeting had been arranged so that a preliminary step could be taken, if considered advisable, by the appointment of a Committee to draft a constitution for the proposed Society. If thought fit, a Founding Committee could be appointed to meet in Birmingham, London, or wherever it was deemed most convenient.

An important point which might be considered if the proposal were adopted was the introduction of a badge or transfer to be affixed to each piece of enamelware as a kind of hall-mark, guaranteeing it to be of vitreous porcelain enamel, as distinguished from synthetic paints.

They would have to consider whether the organization was to be a purely technical one, or be concerned with the commercial aspect of the trade; whether it should embrace both sides. He had been told by some that the Society must be purely technical and scientific in its scope, but this, to him, was not essential, because, after all, technical institutions could not exist were it not for commerce. Although the leading chemists in industry were not directly or primarily concerned with sales, it was their object to produce something which had a commercial value and use, and it was the duty of others concerned in industry and commerce to commercialize their discoveries and products.

Mr. W. TODD (Parkinson Stove Company, Ltd., Birmingham) stated that there was no question that an organization was needed, and he thought that everyone concerned in the industry ought to be prepared to state their case quite frankly and freely, because the time had long since passed when enamelling was regarded as "black magic" and handed down from generation to generation.

The CHAIRMAN announced that Mr. J. F. Barry (of 26, Wharton Street, London, W.C. 1) had offered his services as Acting Secretary to the Founding Committee.

The Committee appointed consists of the following:

Mr. W. H. Whittle (Protector Lamp and Lighting Company, Ltd., Eccles, Manchester), Chairman.
Mr. W. S. Grainger (Stocal Enamels, Ltd., Burton-on-Trent).
Mr. W. Todd (Parkinson Stove Company, Ltd., Birmingham).
Mr. J. H. Coupe (Messrs. Belling & Co., Enfield).
Mr. B. B. Kent (Messrs. Sterling Manufacturing Company, London).
Mr. W. Noake (Patent Enamel Company, Birmingham).
Mr. H. Whitaker (Rustless Iron Company, Ltd., Keighley).
Mr. C. Lee (Messrs. Farmer & Chapman, Ltd., Bilston).

The Dictaphone in Modern Business.

A Great Time-Saver.

The executive who is worried by an insurmountable mass of detail work finds it impossible to carry out the important function of supplying the driving force that makes his business grow. On the other hand, he cannot get rid of a great deal of the detail—it must be faced.

The only solution is so to equip himself that the detail can be handled in a minimum of time—and when his executive work permits him to turn to it. This is where the Dictaphone plays an essential part in modern business.

Interchange of written communication is the very life-stream of business; slow it up and business stagnates. Today it may truly be said that the Dictaphone is the last word in the speedy and efficient handling of written communications. In dictation it replaces the shorthand system, ever prone to small errors.

You talk to the Dictaphone as easily as to the telephone, and whatever you dictate is automatically recorded on a waxen cylinder. It does not matter how fast or how slowly you dictate; all speeds are alike to the Dictaphone. And you alter and correct as you wish. When the cylinder is filled (it holds about 1,500 words and can be used 100 times, costing no more than notebooks and pencils), it is sent to the dictaphonist. She places it on the transcribing Dictaphone, which reproduces the dictated matter in a clear, natural voice at any speed or volume desired, and the dictaphonist types direct from the spoken word.

It is claimed that the dictaphonist can turn out at least twice as much typed matter daily as the most expert shorthand-typist.

Briefly, the Dictaphone, which is manufactured by the Dictaphone Company, Ltd., of Kingsway House, Kingsway, W.C. 2, is an automatic private secretary always ready for work.

BOOK REVIEW

BRASS CASTINGS.*

A book which should receive a favourable reception was announced for publication last week by the British Non-Ferrous Metals Research Association as Research Monograph No. 3. "The Casting of Brass Ingots," by Dr. R. Genders and Mr. G. L. Bailey, respectively Deputy-Director of Metallurgical Research, Research Department, Woolwich, and Chief Officer, Development Department, British Non-Ferrous Metals Research Association, is based upon important investigation carried out for the Association during the last eight years. The researches concerned were directed primarily towards obtaining a full understanding of the factors involved in the casting process, and the directions in which these factors influence the soundness and surface quality of the cast ingot. Such questions as the effects on ingot quality of casting temperature, pouring speed, ingot dimensions, mould coatings, mould temperatures, &c., were studied in detail, and in this book the results are presented and discussed in relation to the casting methods used in commercial practice and recent industrial developments. The volume, which is profusely illustrated, is issued at 15s.

* "The Casting of Brass Ingots," by R. Genders, M.B.E., D.Met., F.I.C., and G. L. Bailey, M.Sc. Pp. XV., 191. 123 illustrations. 15s. 6d. post free.

THE GAS UNDERTAKINGS BILL

[Contributed.]

The Bill introduced by Lord Templemore relating to Gas Undertakings represents the Government's measure of agreement with the recommendations of the Gas Legislation Committee in their Second Interim Report and Final Report. If it becomes law, it will, it is presumed, together with the Gas Undertakings Act, 1932, which followed on the First Interim Report of the Committee, comprise the whole of the legislation based on the work of this Committee.

A clear understanding of the Bill demands the most careful study of existing legislation, and, if it does not fulfil the hopes of some of the members of the Gas Industry, yet the Bill, if made law in its existing form, will confer substantial benefit on the Industry as a whole, and give more freedom than exists at present. It must be admitted that the powers of charge represent a distinct advance, and, if the Industry will make the most of the powers to be conferred and recognize that complete freedom is not likely to be obtained, the complaint so often heard of "restrictive legislation" will become unjustified.

Three Recommendations Not Incorporated.

Before dealing with the Bill in detail, it should be mentioned that only three definite recommendations of the Gas Legislation Committee have not been to some extent incorporated. The first is sub-section 7 of section 68 of the Second Interim Report, which deals with returns to be made by basic price companies. The second is the latter paragraph of sub-section 2 of section 138 of the Final Report, which proposed to abolish the rule under the Act of 1920 that Special Orders must be approved by both Houses of Parliament before becoming law, and to substitute a provision that this formality need only be carried out in the event of an objector, within fifteen days of being notified of the terms of the Order, informing the Board of Trade that he intends to proceed with his objection. The third is the recommendation, section 68 sub-section 3 of the Second Interim Report, that minimum quarterly charges should be authorized based on 10 therms per quarter. Parliament is always careful not to depute more than the necessary powers to the various Departments, and no doubt it is felt that the shortening of procedure is not worth while.

Financial Provisions.

Turning to the Bill in detail, section 1 gives all companies the power to offer capital for subscription at a fixed price instead of by auction, subject to permission from the Board of Trade and approval by them of the terms of issue. Section 2 gives power to pay commission not exceeding 1½% or 3% by permission of the Board of Trade. Section 1 also gives relief from the tiresome "second auction" imposed in early legislation, and cuts down any period of notice to issue capital which may at present exceed fourteen days, to fourteen days.

These powers are already possessed by some companies, usually with permission to pay up to 5% commission, and these companies will not be affected. Other companies will be put in a much more favourable position to obtain capital, as the auction clauses have undoubtedly deterred companies from issuing stock and have prevented the best price being obtained. (Final Report Section 41.)

Section 3 gives all companies power to issue redeemable preferred or debenture stock, and this extends to all companies the powers already possessed by a considerable number. Experience shows that this power is frequently a most useful one, and there are no unreasonable restrictions in the Bill.

Section 4 gives effect to the recommendation of the Committee that the Renewal Fund should be increased to 5% of the share and loan capital (including premiums) of a company, instead of being restricted to 5% of the share capital (including premiums) only, as is at present almost universal. It also gives the Board of Trade power to permit undertakers who sell less than five million therms per annum to increase the fund to 7½%.

The annual contribution, which in some cases is now 1% of the share capital, will, under the Bill, be ½% of the share and loan capital, which means a reduction up to 50% in the rare cases in which there is no loan capital. In cases where it is now ½% of the share capital only, there will be an increase. Generally speaking, this clause is a favourable one; but some undertakings will feel that it does not go far enough, and there should be a saving clause for undertakers who now have better terms.

Modifying the Position Relating to Gas Charges.

Section 5 is most important. It differs from the recommendations in the Second Interim Report by being permissive, and not compulsory. Taken with section 6 it profoundly modifies the whole position relating to gas charges. It visualizes three classes of consumer: (*a*) The normal domestic consumers and those who demand a supply under section 11 of the Gas-Works Clauses Act, 1871. (*b*) The consumers who take stand-by supplies only. (*c*) Consumers with whom the undertakers wish to make special contracts.

With regard to (*a*), the undertakers may publish a price at which they are prepared to supply in each area, and, having done so, that price must not be subject to discount, except for prompt payment. Any consumer obtaining a supply by contract under section 11 of the Gas-Works Clauses Act, 1871, must pay this price, the company being protected by the provisions of that clause.

The published price must not, for a maximum price undertaker, exceed the maximum, and would govern the sliding-scale dividend of a standard price company. If it exceeded the basic price, any special prohibitions in the Company's Acts or Orders as to not exceeding the basic dividend if the selling price exceeded a certain figure, would come into operation.

With regard to (*b*) "Stand-by supplies," section 5 extends the protection, already enjoyed by some undertakers, to all undertakers, and makes it clear that any excess price charged under this section need not be taken into account as regards maximum price, or any dividend restrictions.

Whether a supply is "stand-by" or not, is to be determined, failing agreement, by arbitration.

With regard to (*c*) "Special Contracts," section 6 makes the usual amendments to section 13 of the Gas-Works Clauses Act, 1847, by inserting "or any premises," and the provision that contracts under like circumstances shall be similar. It also provides for the recommendation in section 67 of the Second Interim Report that gas supplied through a prepayment meter shall be charged for as if it had been supplied through an ordinary meter.

Section 6 applies to all undertakers, but does not appear as a general rule to alter the existing statutory position of most of them, except that any which have not been before Parliament or the Board of Trade in the last few years may not have the "like circumstances" clause in their Acts. This is provided for by the last paragraph, which saves existing contracts from alteration.

Section 5 provides that gas sold under these contracts need not be considered as restricting sliding-scale or basic dividends or exceeding a maximum price. This is an important advance, and appears to authorize minimum charges, block rates, and other tariffs, but only to those consumers prepared to make contracts.

The following is an example of the terms an undertaking could offer assuming a maximum basic price of one shilling per therm.

(*a*) All consumers may buy gas at 12d. per therm.
(*b*) Stand-by supplies will be charged for at 12d. per therm, but a minimum quarterly charge for gas will be made equal to 3d. per c.ft. per hour of maximum potential demand, or such other sum as may be agreed.
(*c*) In the event of a consumer entering into a special contract with the undertaking various charges may be made—*e.g.*, "£1 per quarter fixed charge, which would entitle the consumer to 20 therms and the remaining gas at 6d. per therm," or "a charge per quarter based on maximum demand and all gas at 5d. per therm," &c.

It will be seen that very considerable freedom is proposed, and, although there is nothing compulsory in section 5, no doubt numerous undertakers will take advantage of it.

The Bill seems to encourage the application of the basic price system, by making the application of special tariffs more advantageous.

Although the Legislation Committee recommended the authorization of a minimum charge, yet the report emphasized the difficulty in collecting even a nominal service charge from many prepayment consumers.

Non-Statutory Undertakers.

Sections 7 to 9 inclusive give effect *in toto* to the recommendations of the Committee with regard to non-statutory undertakings, and do not concern statutory undertakers, except those who still do not supply on the thermal basis.

Non-statutory undertakers supplying more than thirty million c.ft. per annum must apply for statutory powers if so requested by the Board of Trade not earlier than Jan. 1, 1936, and those supplying over twenty million c.ft. may be required to, if it appears to the Board that an insufficient

or unsatisfactory supply is being given. All non-statutory undertakers supplying over twenty million c.ft. must supply gas free from sulphuretted hydrogen, and whether they are statutory or not, all undertakers, however small, must supply at a pressure not less than 2 in. water gauge. These provisions are to date from Jan. 1, 1939. Returns in such form as the Board of Trade may direct must be made annually before March 1 by non-statuory undertakers, and duplicate copies sent to every local authority in whose area gas is supplied.

These provisions may not meet with the approval of non-statutory undertakers; but if it is right that the large companies should submit to statutory control, it must be right for the small, and these clauses must be regarded as medicine—unpalatable, but for the ultimate good of the patient and the Industry as a whole.

It should be pointed out that undertakers whose principal business is not gas supply, electricity supply, or water supply, and who are not local authorities, are exempted from the provisions of the Bill. The Gas Legislation Committee recommended that mainly industrial firms such as collieries should be exempted.

Gas Testing.

Section 10 provides for the abolition of the Chief Gas Examiner at the beginning of 1935, and for the abolition of the Gas Referees from 1939 onwards, and the Board of Trade will take over their duties.

Section 11 gives local authorities or Quarter Sessions power to appoint gas examiners. It provides that local authorities may appoint joint gas examiners, and five consumers, if there is no examiner or they consider the examiner is not performing his duty properly, may apply to Quarter Sessions for an examiner or a fresh examiner to be appointed. If one is appointed, the local authority must pay the costs of the application and the remuneration and expenses of such examiner. Local authority undertakings cannot appoint their own gas examiner, but Quarter Sessions must do so. Gas examiners at present in office continue as if appointed under the Bill.

Non-statutory undertakers and statutory undertakers not on a thermal basis will not have more than one test of purity and pressure in each quarter.

Deficiencies in Calorific Value.

Section 12 is important. It provides that where the revenue of any undertaker has been improperly increased by a deficiency for a whole quarter in calorific value, the excess shall be returned as a credit on the accounts to consumers for gas consumed in that quarter as regards each fifth of a penny deficiency. Odd fractions of a fifth are to be paid to the Gas Fund in the following year. It is also provided that no average calorific value for any quarter shall be calculated from less than six tests.

This is a great relief to undertakings at present dependent on only two tests, and the allocation of relatively small penalties has given rise to accounting difficulties.

Section 13 enables the Board of Trade to make Consolidating Orders and Orders in respect of gas and water, gas and electricity, and gas, water, and electricity companies. This will be appreciated as a saving in time and expense, more particularly by the smaller companies.

Section 14 gives the Board of Trade power to require different statistics and returns from different undertakers and to require an auditor's certificate with any of them. This will be regarded as an imposition by some undertakers and may lead to extra expense. Some modification of this clause might reasonably be inserted by Parliament, limiting the information to be supplied.

Bulk Supplies.

Section 15 gives all adjoining undertakers power to give or take a bulk supply and further extends the power of the Board of Trade to make Special Orders. The Board may, under this section, make Orders authorizing undertakers:

(*a*) To lay a pipe to give a bulk supply to other undertakers not adjoining their limits.
(*b*) To lay a pipe outside their limits to facilitate a supply of gas in part of their limits.
(*c*) To use plant, research establishments, or other facilities jointly with other undertakers.
(*d*) To continue as long as may be permitted by the Order to supply on the cubic foot basis for works purchased from non-statutory or "non-thermal unit" undertakers.

For the above purposes power may be given to open roads outside the limits of supply, but bulk supply mains will not be deemed to be mains in so far as no person may demand a supply from them unless the main is already used for local supply. Sub-section (*a*) extends the powers possessed by the Board of Trade under sub-section 2 of section 10 of the Act of 1920 to give power to take a bulk supply from any source outside the limits of supply. Sub-section (*b*) is useful, and sub-section (*c*) appears to provide that two or more undertakers could build a joint works or use a joint supply main under the powers of an Order.

The term "purchased a gas-works" is not clear, in so far as it is not linked with the acquisition of an undertaking or any addition to the limits of supply.

Usual Clauses.

Sections 16 to 21 are common clauses in private legislation now extended to all undertakers, and are very useful. Section 16 provides that a consumer must give twenty-four hours' notice before quitting premises. Section 17 provides that undertakers need not supply gas to a person who has quitted premises without paying all the money due to the undertakers. Section 18 permits undertakers to cut off gas from persons in default, and specifies fines for reconnection by the consumer after disconnection. Section 19 provides that the power given under section 21 of the Gas-Works Clauses Act, 1871, to enter premises to ascertain the quantity of gas used shall extend to an inspection of the meter, fittings, and other works, unless the undertakers have, after a reasonable time, failed to disconnect the service pipe at the occupier's request. It also provides that notice of forcible entry provided for under section 22 of the 1871 Act shall be sufficient if the notice is fixed not less than forty-eight hours earlier on a prominent part of the premises, provided that after diligent inquiry the owner cannot be ascertained. This should also be a useful power in certain cases, but these would occur comparatively seldom.

Section 20 provides the usual terms as to erroneous registration of meters. Most undertakings have this section, and it merely says that the error shall be deemed to have commenced at the beginning of the quarter in which it is discovered, unless it can be proved to have started earlier.

Section 21 extends to all undertakers the usual clause with regard to the provision of valves or anti-fluctuators where engines, compressors, high-pressure air or other gas are used. It should be noted that notice of the effect of this clause is to be given to all consumers on the first account rendered after the passing of the Bill, and to future consumers on the first account rendered to them.

Expenses.

Section 22 provides that the expenses of the Board of Trade in connection with this Bill and the Gas Undertakings Act, 1932, shall be a charge on the Gas Fund, and that superannuation of all persons employed by the Board of Trade under the Gas Undertakings Act, 1920 to 1932, and this Bill shall be a charge on the Fund.

Under section 7 of the 1920 Act, the Gas Referees are paid out of the Gas Fund, but the Bill proposes to make much more than the corresponding transfer due to the Board of Trade taking over their duties. It appears to be the intention that by means of the fees paid to the Board of Trade in connection with Orders and by the Gas Fund, the Gas Industry shall entirely support that part of the Board of Trade engaged in regulating gas supply. It would be useful for the Industry to be informed as to the extent of these obligations.

Section 23 supplements section 20 of the 1920 Act. Any local authority or rural district council supplying gas are to defray expenses incurred under the Gas Undertakings Acts out of the revenue of their gas undertaking. County councils may pay expenses incurred under the 1920 Act or this Bill out of a special rate on those parts of the county in which they have power to appoint a gas examiner, or would have power if they did not supply gas themselves. Under section 11 of the Bill they cannot appoint an examiner if they themselves supply gas, and cannot appoint an examiner in an urban district or non-county borough unless the local authority for that district itself supplies gas. Hence the effect of this section is that county councils appointing a gas examiner or incurring other expenses under these Acts shall defray the expense out of the rates on the whole county except for urban districts and non-county boroughs in which gas is supplied other than by the local authority, and in which it is presumed any gas examiner would be appointed by the local authority of that area. The expenses of local authorities other than county councils are still to be defrayed as provided in section 20 of the 1920 Act.

Amendments to Previous Legislation.

Section 24 makes numerous minor amendments, and consequential amendments, to previous legislation, all set out in the Second Schedule. Apart from the amendments consequential to the sections previously discussed, the following are the minor alterations.

(1) Notices shall be served in future on *every* local authority. It would seem that this might mean every local authority in the kingdom, but it is limited by section 18 of the 1920 Act to the area of the undertaking concerned.
(2) Suppliers of more than five million therms must provide a recording calorimeter. This previously ap-

plied (in law, but not in practice) to suppliers of more than one hundred million c.ft.

(3) If undertakers are aggrieved at the report of a gas examiner they may request the Chief Gas Examiner (or after Jan. 1, 1935, the person appointed by the Board of Trade) to consider representations made in writing instead of at a hearing.

(4) Undertakers are not to forfeit moneys or be liable to penalties owing to a deficiency of calorific value or lack of pressure or purity on account of circumstances beyond their control. This is enacted in the 1920 Act, but is now made clearer.

(5) Contributions to the Gas Fund are to be calculated on the thermal basis in future, instead of by cubic feet, and gas sold to other undertakers in bulk for distribution is exempted. Separate industrial sales shall pay at half the rate of domestic sales. No doubt this will meet with the approval of undertakers supplying gas of low calorific value. It is not clear what is meant by "gas supplied separately for industrial purposes," but presumably it applies to gas sold through special mains.

(6) Rural districts (which are not technically "local authorities") may be given powers to supply gas under section 10 of the 1920 Act.

The other amendments are either very minor drafting alterations or consequent upon the abolition of the Chief Gas Examiner and Gas Referees. It is noted, however, that after Jan. 1, 1939, the penalty for failure to comply with the prescription of the Board of Trade will be £25 and £5 a day, whereas it is now £25 and £25 a day for non-compliance with the prescriptions of the Gas Referees.

Section 25 gives the "definitions." Section 26 repeals all the sections of previous Acts which become redundant on the passing of this Bill or at subsequent dates. Section 27 applies the Bill to Scotland, with the necessary amendments. Section 28 is the last, and specifies the title of the Bill and the date of commencement, which is the first day of the first quarter after the passing of the Act. This section also excludes Northern Ireland from the Bill.

To Sum Up.

No doubt many will feel disappointment that the Bill is not of wider scope. It does, however, include nearly all the recommendations of the Gas Legislation Committee, and does not purport to be the new Gas-Works Clauses Act, repealing previous legislation and consolidating gas legislation in one comprehensive Act. The Committee refrained from advising this, and it is not surprising that it has not yet developed. The question of gas charges has yet to find a final solution, and the Bill certainly gives scope for experiments.

It is a pity that the Bill does not include some provision that any person consuming less than (say) 10 therms per quarter, or the equivalent of (say) 25 hours' maximum consumption, could be *ipso facto* considered to be a "stand-by consumer." A compulsory minimum charge was expected in view of the report of the Gas Legislation Committee, but it does not follow that the Industry as a whole would have exercised the power.

Another feature of the Bill which may give rise to misgiving is the increasing control of the Board of Trade. The formalities with regard to issuing capital by subscription could be eased by eliminating Board of Trade approval of the terms of issue, and, unless directors of Gas Companies are fools or rogues, it is difficult to see what useful purpose is served.

Non-statutory undertakers will, perhaps, be the most concerned by the Bill, but let them remember that only three clauses apply to them. If they supply more than thirty million c.ft. per annum they may be compelled to become statutory; if less, they need not, unless they give an inefficient supply, and if less than twenty million c.ft. they are exempt from this provision. Few people will say that this proposal is not in the best interests, not only of the Industry as a whole, but of each undertaker.

All that non-statutory undertakers supplying less than twenty million c.ft. need do is to maintain a pressure of 2 in. in their mains and make annual returns, and the first of these provisions does not apply until 1939. This is no real hardship, and they need not even contribute to the Gas Fund!

Non-statutory undertakers supplying more than twenty, but less than thirty millions, must, in addition to the items in the last paragraph, supply gas free from sulphuretted hydrogen after Jan. 1, 1939. This will involve some expense, but ample time is given for preparation.

So far as it goes, the Bill is helpful, and it is to be hoped that, if it becomes law, the Gas Industry will avail itself of its new powers.

Gas Floodlights Model Home

Our photograph illustrates a floodlighting installation recently carried out by the Cheltenham and District Gas Company. The house, which is one of a series for sale in a popular residential district of Cheltenham, was furnished by a local firm, while the Gas Company installed a number of representative gas appliances. Over 1,000 people visited this exhibition house on the opening day, and the Gas Company have been successful in obtaining many orders as a result of the appliances displayed.

SIR ARTHUR DUCKHAM MEMORIAL FUND

Official List of Donations from Feb. 14 to March 9

Name and Town.	Amount. £ s. d.
Abbott, Birks, & Co., London	5 5 0
Aberdeen Town Council Gas Department	50 0 0
Aberystwyth Gas Company	5 5 0
W. G. Adam, London	1 1 0
"Admirer," 43, Rotherham	1 1 0
Kenneth Aird, London	2 2 0
Alder & Mackay, Ltd., Edinburgh	10 10 0
J. R. W. Alexander, London	1 1 0
David H. Allan, C.A., London	5 5 0
Anderson Bros., London	10 0 0
Dr. G. W. Anderson, London	1 1 0
John Argyle, Bristol	1 1 0
Frank Astbury, West Hagley	5 5 0
Duncan Bailey, Wakefield	1 1 0
Sir James Baillie, LL.D., D.Phil., Leeds	1 1 0
Sir Albert Ball, Nottingham	1 1 0
Mrs. Marthe Batchelor, Pulborough	0 2 6
J. Baxter, Seven Kings	0 10 6
H. E. Bennet, London	5 5 0
C. Valon Bennett, Rochester	5 5 0
W. H. Bennett, Redhill	5 5 0
Berkhamsted Gas Company	3 3 0
F. G. L. Bertram, C.B.E., Berkhamsted	0 10 0
Bilston Gas Light and Coke Co., Staffs.	5 5 0
Blandford Gas Co., Ltd.	0 10 0
Boston Gas Light and Coke Co.	5 5 0
Charles F. Botley, Hastings	3 3 0
Bournemouth Gas and Water Co.	52 10 0
Mrs. M. A. Cloudesley Brereton, London	1 1 0
Bridgwater Gas Light Co.	7 7 0
British Electric Traction Co., Ltd., London	2 2 0
British, Foreign, and Colonial Automatic Light Controlling Co., Ltd., Bournemouth	5 5 0
A. E. Broadberry, Hampstead	5 5 0
R. W. Broadhead, Chipstead	1 1 0
Broadstairs Gas Co.	5 4 0
A. S. Brook, Lisburn, Co. Antrim	1 1 0
W. J. Brooke, Scunthorpe	5 5 0
Mrs. Constance M. Brown, Letchworth	5 5 0
Bryan Donkin Co., Ltd., Chesterfield	21 0 0
Corporation of Bury (Gas), Lancs.	10 10 0
W. A. S. Calder, Birmingham	1 1 0
Thomas F. Canning, Thorpe Bay	1 1 0
Dr. Charles Carpenter, London	5 5 0
Col. William Moncrieff Carr, Stretford	3 3 0
Jacques Cartier, London	25 0 0
William Cash, F.C.A., London	5 0 0
Chancery Lane Printing Works, Ltd., London	3 3 0
City of Chichester Gas Company	2 2 0
Rt. Hon. Winston S. Churchill, M.P., Westerham, Kent	5 0 0
Alderman G. Clark, J.P., Chesterfield	3 3 0
R. H. Clayton, Manchester	10 10 0
Leslie E. Clift, London	2 2 0
Prof. J. W. Cobb, Leeds	2 2 0
Sir Cecil A. Cochrane and Lady Cochrane, Newcastle-on-Tyne	20 0 0
Colchester Gas Company	5 0 0
Dr. H. G. Colman, London	5 5 0
R. Girdlestone Cooper, London	1 1 0
Cork Gas Consumers' Company	10 10 0
Cornish Gas Association, Falmouth	1 1 0
City of Coventry Gas Department	50 0 0
R. V. E. de B. Crawshay, Maldon, Essex	1 1 0
Col. R. E. B. Crompton, London	2 2 0
C. A. Cunnold, London	1 1 0
Col. A. E. Davidson, London	1 1 0
H. E. de Boissiere, B.Sc., A.M.Inst.C.E., London	1 0 0
Derbyshire Silica Firebrick Co., Ltd., Buxton	25 0 0
C. S. Dicker, March	2 0 0
A. Dickinson, Pendlebury	0 2 6
Dougall's Gas Meters, Ltd., London	2 2 0
W. Newton Drew, Sheffield	10 0 0
Charles Dru Drury, Sunderland	2 2 0
Jane and Alice Duckham, Isle of Wight	10 0 0
Mrs. V. E. Duckham, Lingfield	5 0 0
Dunlop Rubber Co., Ltd., London	25 0 0
G. F. Dunn, Wells, Som.	1 1 0
L. W. Dunn, Woodmansterne	0 10 6
Walter T. Dunn, Hastings	0 10 6
East Surrey Gas Co., Redhill	25 0 0
Lord and Lady Ebbisham, Cobham	2 2 0
City and Royal Burgh of Elgin Town Council	4 12 0
Elland-cum-Greetland Gas Co.	3 3 0
Ely Gas and Electricity Co., Ltd.	0 10 6
George Evetts, London	2 2 0
F. J. Falkner, Romsey	1 10 0
Falmouth Gas Co.	2 2 0
C. P. Finn, Wath-upon-Dearne	1 1 0
Right Honourable Earl Fitzwilliam, K.C.V.O., London	10 0 0
Percival Flavel, J.P., Leamington	1 1 0
John K. Frazer, Glasgow	0 10 0
G. S. Frith, Runcorn	1 1 0
Percy C. Gardiner, London	0 10 6
Alexander A. Garrett, M.B.E., London	0 10 6
General Electric Co., Ltd., London	25 0 0
A. T. Gilbert, London	1 1 0
Gloucester Gas Light Co.	5 5 0
Thomas Glover, C.B.E., Norwich	1 1 0
Sir Francis Goodenough, C.B.E., London	10 10 0
Fredk J. Gould, Oxted	1 1 0
Greengate and Irwell Rubber Co., Ltd., Salford	3 3 0
F. Greenhalgh, Oldham	1 1 0
Arthur L. Griffith, London	1 1 0
John Halliwell, London	1 1 0
E. H. Hallows, Beckenham	2 2 0
Lady Hambling, Yoxford	1 1 0
T. Hardie, London	5 5 0
Hardman & Holden, Ltd., Manchester	52 10 0
Oscar Harmer, Coventry	5 0 0
Alfred Harrison, London	2 2 0
D. A. Hart, Sutton	1 1 0
Haworth Urban District Council	2 2 0
Stephen Hay, Snaresbrook	1 1 0
Harold H. Hayward, Romsey	0 2 6
H. C. Head, Winchester	5 5 0
Sir Hugo Hirst, London	10 10 0
W. C. Holmes & Co., Huddersfield	26 5 0
Alfred L. Holton, Manchester	2 2 0
Percy N. Hooper, Torquay	5 0 0
Horsham Gas Co., Ltd., Sussex	4 4 0
Hörstmann Gear Co., Ltd., Bath	2 2 0
D. M. Hughes, Caerphilly (Glam.)	2 2 0
Humphreys & Glasgow, Ltd., London	50 0 0
Imperial Chemical Industries, Ltd., London	10 0 0
Institution of Gas Engineers, London	250 0 0
Isle of Thanet Gas Light and Coke Co., Margate	10 10 0
"Joan," 75, London	0 10 0
Sir William John Jones, K.B.E., London	10 10 0
G. T. Joyce, Bexley	0 10 6
Alfred Henry Keable, London	2 2 0
George Kent, Ltd., London	2 2 0
Ernest King, Sheffield	1 1 0
Walter King, Ltd., London	3 3 0
Knottingley Gas Co.	1 10 0
Leslie C. Lambert, Glasgow	1 1 0
Lane Brothers, Birmingham	1 1 0
Sir William James Larke, K.B.E., Sidcup	5 5 0
Sir Walter T. Layton, C.H., London	2 2 0
Leatherhead Gas and Lighting Co.	10 0 0
W. B. Leech, London	1 1 0
City of Leicester Gas Department	2 2 0
Dr. R. Lessing, London	5 5 0
Viscount Leverhulme, London	50 0 0
Littlehampton Gas Company	5 5 0
Frank Livesey, Budleigh Salterton	5 0 0
Alderman J. H. Lloyd, J.P., Birmingham	5 5 0
Reginald George Longeroft, London	2 2 0
R. C. Macdonald, London	1 1 0
"Machinery Market," Ltd., London	1 1 0
J. Macleod, Glasgow	1 0 0
Sir Paul A. Makins, London	2 2 0
Manchester Oxide Co., Ltd.	52 10 0
Robert McDougall, Stockport	5 0 0
McDougalls, Ltd., London	105 0 0
Sir Arrol Moir, Bt., London	2 2 0
Dr. A. C. Monkhouse, Bristol	1 1 0
Philip G. G. Moon, Parkstone.	5 5 0
Nederlandsche Ovenbouw Maatschappy N.V., Zeist, Holland	5 0 0
Newmarket Gas Co.	10 0 0
Newport (Monmouthshire) Gas Co.	15 15 0
Newport Pagnell Gas and Coke Co., Ltd.	1 4 0
Newton, Chambers, & Co., Ltd., Thorncliffe	25 0 0
Theodore Nicholson, Gainford	1 1 0
N.O.D. Institute, Ltd., London	5 5 0
North British Association of Gas Managers	5 5 0
Hugh Orr, Belfast	1 0 0
E. R. Peal, London	0 10 6
"Peggy," 146, London	1 1 0
G. A. Peppercorn, Birmingham	5 0 0
Phœnix Supply Co., London	5 5 0
B. Pochobradsky, Erith, Kent	1 0 0
Hubert Pooley, Leicester	2 2 0
Dr. Laurence Potts, Leatherhead	1 1 0
Sir Keith Price, London	10 10 0
W. H. Price, Cromer	0 5 0
Redditch Gas Co.	21 0 0
Sir J. C. W. Reith, LL.D., London	1 1 0
J. R. Richmond, Glasgow	5 0 0
T. N. Ritson, Worthing	0 10 6
Miss M. H. Robarts, Fleet	0 10 0

Name and Town.	Amount. £ s. d.
T. Roberts, Bolton	2 2 0
W. H. Roberts, Donaghadee	0 16 0
J. H. Robinson & Co. (Liverpool), Ltd., Liverpool	5 5 0
Rochester, Chatham, and Gillingham Gas Co.	37 5 0
R. J. Rogers, Birmingham	3 3 0
James F. Ronca, London	1 1 0
Rothwell Gas Light Co.	3 10 0
Sir Thomas Rowbotham, J.P., Bramhall	1 1 0
Rugby Gas Co.	21 0 0
Salamon & Co., Ltd., Rainham, Essex	5 5 0
Saltcoats Gas Co., Ltd.	5 5 0
Messrs. Sandberg, London	2 2 0
Scarborough Gas Co.	15 15 0
Seaford Gas Co., Ltd.	3 12 0
Mrs. Dorothy Self, Cheltenham	1 0 0
Shanklin and Ventnor Gas Co.	5 5 0
J. Fraser Shaw, London	0 10 6
A. C. Slaughter, London	2 2 0
Jas. D. Smith, Belfast	2 2 0
Major W. H. Smith, East Molesey	5 0 0
Smith Meters, Ltd., London	10 10 0
Ste. Anonyme de Carbonisation et de Distillation des Combustibles, Paris	5 0 0
Society of British Gas Industries, London	105 0 0
Southampton Gaslight and Coke Co.	52 10 0
Spenborough Urban District Council, Cleckheaton	14 15 0
Col. Alan Stein, Polmont	3 3 0
Steel Band Conveyor and Engineering Co., Ltd., Birmingham	1 1 0
W. Lees Stenning, Redhill	2 2 0
Stourbridge Refractories Co., Ltd., Near Dudley	26 5 0
E. J. Sutcliffe, Bradford	1 1 0
Sutherland Meter Co., Ltd., Wilton, Birmingham	5 5 0
Swanage Gas and Electricity Co.	2 17 6
Samuel Tagg, Preston	5 5 0
Frank P. Tarratt, Newcastle-on-Tyne	10 10 0
Frank C. Taylor, Shanklin	1 1 0
H. Taylor, London	0 10 6
John Terrace, London	1 1 0
J. F. I. Thomas, Wakefield	2 2 0
Tilley Bros., Ltd., London	10 10 0
Vulcan Stove Co., Ltd., Exeter	5 5 0
Sir Alexander Walker, K.B.E., London	10 0 0
Walker, Crosweller, & Co., Ltd., London	1 1 0
Walton-on-Thames and Weybridge Gas Co.	13 3 0
Wandsworth and District Gas Co.	10 10 0
Wilfrid Wastell, London	1 1 0
John Webster, Glasgow	0 10 0
Rt. Hon. Lord Weir, P.C., G.C.B., Glasgow	20 0 0
G. & J. Weir, Ltd., Glasgow	10 0 0
J. G. Weir, Glasgow	5 0 0
Wellington (Salop) Gas Co.	10 10 0
S. W. Wellington, London	1 1 0
Wells Gas Light Co., Somerset	2 2 0
West's Gas Improvement Co., Ltd., Manchester	210 0 0
Westwood & Wrights, Ltd., Brierley Hill	10 0 0
Frederick H. While, London	2 2 0
J. Wilkinson, O.B.E., Nottingham	1 1 0
Willey & Co., Ltd., Exeter	10 10 0
F. C. Willis, Newcastle-on-Tyne	1 1 0
N. Willsmer, London	1 1 0
Wolverhampton Gas Co.	40 0 0
Woodall-Duckham Companies, London	1,000 0 0
Total Donations (239) paid	£3,233 2 6
Donations (26) promised	2,354 7 6
Total Donations (265) paid or promised	£5,587 10 0

TWO-PART TARIFFS FOR PREPAYMENT CONSUMERS.

The difficulties of offering the advantages of scientific tariffs to prepayment consumers, who now form the majority of our customers, have long been evident, and we were interested to have explained to us at the B.I.F. an apparently mechanically perfect solution of the problem. This is the "Newbridge Time Tariff Controller"—another scientific product of the Horstmann Gear Company, Ltd., of Bath—for which Hudson-Horstmann patents are pending.

The apparatus has been primarily designed to enable a service charge, as the initial levy in a two-part system of charge, to be prepaid at the beginning of a certain specified period of service, particularly in the case of consumers using gas through a prepayment type of meter. Their *status quo* can thus be maintained even in a two-part rate system, since in the case of both service and commodity charges the obligation is theirs to prepay for both.

The apparatus takes up very little space and is stout and robust in design, being supplied with standard practice meter unions, and intended to be fitted immediately above the meter. Where the present inlet connection to the meter is of the flexible type, its fixing is very easily effected, the outlet union part of the service supply valve being screwed direct on to the meter inlet, and the existing connection between service tap and meter inlet connected on to the inlet union part of the service supply valve.

This service supply valve is easily removable from the main body of the mechanism and is designed to be absolutely gas tight, the valve rod working through a diaphragm and not a gland. Again, the valve is made on liberal lines, there being almost no pressure drop across it when working in conjunction with modern design H.C. prepayment meters.

Operating this service valve, which in its dead position is closed, is a coin-operated time mechanism functioning as follows. Upon the insertion of the necessary coin, either a shilling or sixpence according to the pre-set adopted, the coin remains partly visible in the coin feed slot until the time mechanism has been fully wound by the consumer by means of a permanently fixed winding knob situate at the front face of the apparatus. When, and not until, this full-wound condition obtains the coin drops into its valve-actuating position in the mechanism. Immediately the winding pressure is removed—that is, when the consumer releases the winding knob—the presence of the coin causes the necessary thrust to be transmitted to the valve

rod, the valve is opened, and simultaneously the clock mechanism is started by the removal of the brake combined with the operation of a positive starting device.

This condition then obtains for a period of seven days, when, unless a further coin has been inserted and the clock rewound, the coin is ejected, the valve closed, and the clock stopped. The design provides for a warning of this taking place, since the valve closes in four steps following each other at periods of twenty minutes. The coin on being ejected drops into a neat coin box in the base of the mechanism and in its passage through the weekly cycle it operates a pointer, thereby enabling a check to be kept on the amount paid for service charge.

This, in brief, is a cycle of operation covering a period of seven days, but there are one or two further interesting provisions in the unit. Firstly, the clock cannot be overwound by the consumer, since the design allows the winding thrust to be transferred at full-wound position on to the rocking mechanism, which allows the coin to drop to its valve-actuating position.

Secondly since the apparatus contains a fifteen day clock movement and provision is made for holding a second coin in an automatic feed position, if the user so wishes he need only visit the apparatus once every fortnight.

Thirdly, the user is not bound down to any specified time to insert the operating coin. A second coin can be inserted at any time from the insertion of the first to almost its complete run of seven days, the position being that the clock mechanism has to be rewound the amount it has run down, and then the second coin will drop into the automatic feed position to come into use at the end of the seven day period then running.

The overall dimensions of the controller are: Height 6½ in., width 6 in., and depth 5 in. The weight is 6 lbs.

Glover-West Verticals at Wellingborough

Operating Results

In the "JOURNAL" for July 12, 1933, we published an illustrated description of the Glover-West vertical retort plant installed in 1932. In the current issue of *West's Gas* the working results are given.

Under the conditions of operation of this particular plant the retorts would work for four weeks before scurfing became necessary, and it was definitely not advisable to exceed this period.

The policy adopted for the scurfing procedure has been:

(*a*) Not to allow the temperature of the retort to exceed the normal carbonizing temperature, and

(*b*) To allow plenty of time for the scurfing process (this is really in consequence of (*a*)).

It is found convenient to carry out scurfing at weekends, and it is fortunately possible to scurf in heating units of two retorts at a time. At 5 p.m. on Friday evening, coal slides are closed, valves cleared, and the producer gas dampers and control dampers are checked on the pair of retorts in question. By about 7 p.m. the retort feed hoppers are empty, and the extractor gear is set to give maximum extraction. The top ironwork is cleaned down inside, and as soon as the quality of the gas becomes poor the gas offtake valves are closed and the gas vented to atmosphere. The retorts are usually empty at about 4 a.m. on Saturday morning, and it is sometimes necessary to use extra steam at the bottom of the retort during the last stages of coke extraction, in order to prevent overheating of the bottom castings.

AIR AND STEAM REGULATION.

When the retorts are empty the worms are split and the air regulating door set to give about 12 sq. in. opening. The West-Taylor steam valves are set to give the equivalent of 5 notches at 18 lbs., which is maintained through out the scurfing period.

During Saturday and Sunday the air slide opening is periodically reduced as the carbon is burnt off, and the producer gas dampers and control dampers are gradually opened as the retort tends to cool, thus maintaining the temperature of the retorts as constant as possible. Scurfing is usually completed by 6 a.m. on Monday morning, when the dampers are brought up to normal working positions and the retorts are filled with coke and started up in the usual manner. The maximum throughput of the pair of retorts is usually reached before 6 a.m. on Tuesday morning.

Up to the present time, after 18 months' working, the retorts show no sign of flaking or spalling, and it is considered that even this short experience confirms the views of various speakers at the recent Research Meeting of the Institution of Gas Engineers, who stressed the influence of temperature variation on refractories during scurfing operations.

WORKING RESULTS.

The working results for the year, January, 1933-34, are now available and are given below:

Coal carbonized	14,283 tons
Gas made	244,530,000 c.ft.
Calorific value	482 B.Th.U.
Make per ton	17,120 c.ft.
Therms per ton	82·5
Coke and breeze made	12·4 cwt. per ton coal carbonized
Coke used in producers	2·57 " " " "
Coke and breeze *ex* retort house	9·83 " " " "
Coke and breeze sold	7·84 " " " "
Steam % on coal carbonized	17–18% average
Corrected to 30 in. Bar., 60° F.	
Make per ton	17,560 c.ft.
Therms	85·8

COAL TESTS.

During the spring and summer of 1933 very careful bulk tests were carried out on batches of South Yorkshire coals that were being received under contract, and various Derbyshire coals were also tested, to determine the commercial value of these coals when carbonized in the vertical retort plant.

The following table shows the results obtained. Coals A to G inclusive are from the South Yorkshire coalfields and coals H to K from Derbyshire:

Ref.	Make per Ton.	Cal. Val. B.Th.U. per C.Ft.	Therms per Ton.	Steam Curve.	Coke Quality.	Working.	% Steam.	Gross Coal Cost per Therm at 460 B.Th.U.
	C.Ft.							d.
A	17,700	487	86·2	1–2	Good	Easy	19·8	3·14
B	18,090	499	90·2	A–B	"	"	23·1	3·01
C	19,200	476	91·4	1	"	"	—	3·11
D	19,430	501	97·2	B	"	"	22·8	2·89
E	16,240	494	80·2	3	"	"	22·2	3·06
F	18,686	487	91·0	A	"	Difficult	20·8	3·03
G	18,770	480	90·1	1	Fair	Easy	18·9	3·05
H	16,080	460	73·9	7	"	"	13·5	3·54
I	17,630	476	83·9	3	"	Fair	18·0	3·16
J	16,120	463	74·7	7	"	"	14·1	3·80
K	15,302	487	74·5	5	"	Easy	17·7	3·14

The results shown are corrected to 60° F., 30 in. bar., and have been used to determine, in the first place, the steaming curve followed by the coal under consideration. When this is determined it is a simple matter to find the gross coal cost per therm at any standard calorific value.

The following conclusions are drawn from the results obtained, though it is realized that the geographical position of the undertaking relative to the coalfields, the relative value of coal and coke, and the relative cost of alternative methods of transport that might be available in certain cases, would influence these conclusions considerably when applied to other undertakings.

(1) That the best all-round results are obtained from the carbonization of South Yorkshire coals.

(2) That the cheapest gaseous therm is obtained from the carbonization of South Yorkshire coals in this particular case.

(3) That South Yorkshire small coals can be carbonized without trouble when making gas of 460 B.Th.U. or over.

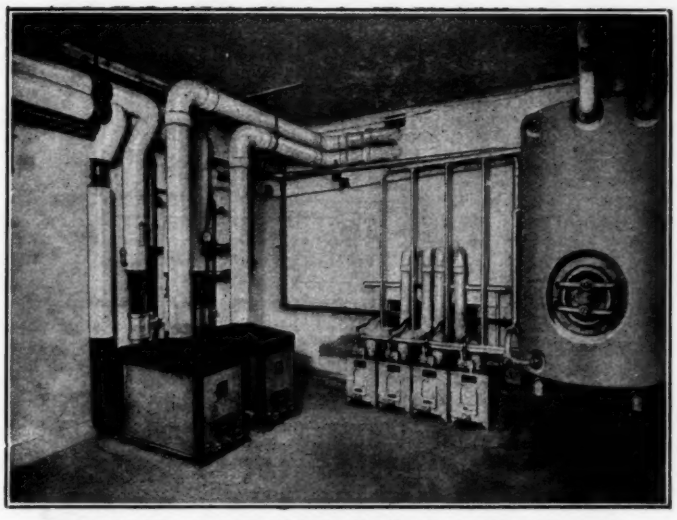
(4) That, in general, Derbyshire coals take steam more easily and might be more valuable where a calorific value of less than 460 B.Th.U. was required.

In conclusion, the writer would stress the importance of treating modern carbonizing plant (and particularly the continuous vertical retort) as a scientific instrument which will respond perfectly to correct technical handling. The excellent results that can be obtained under these conditions will more than pay for the cost of such attention and will be reflected in the life of the plant and the commercial prosperity of the undertaking operating it.

C. C. W.

GAS GIVES PERFECT TURKISH BATHS

Kensington Spa Relies on Gas for all Heating Purposes



A CORNER OF THE BOILER ROOM AT KENSINGTON SPA.

Since this photograph was taken the units of plant have been increased, while for reasons explained in the accompanying article the lagging has been removed from the 300-gallon storage boiler. The "Rex" boilers for the central heating are seen on the left, and the "Empire" units for hot water supply in the centre.

Most people have heard of Leamington Spa, Bath Spa, Cheltenham Spa, and others; but few as yet possibly know of Kensington Spa. Such, however, does exist, and while it does not, perhaps, reach the extent of some of the more famous Spas, it is, nevertheless, becoming rapidly more popular—and for its success considerable reliance is placed upon gas.

The building is actually known as "Palace Gate Spa," being situated at No. 4, Palace Gate, Kensington, W. 8, and it was formerly a large private mansion. It is now converted into a special treatment centre for ladies, who can here obtain many advantages for which previously a journey of, perhaps, hundreds of miles was necessary.

To give some idea of what the gas installation has been called upon to do, a brief description of the Spa's equipment will be of interest. This includes parlours for various kinds of beauty treatment and reception rooms, massage and exercise rooms, specialized baths, comprising aeration, foam, brine, sulphur, needle, &c., Scotch and Vichy douches, and luxurious Turkish and Russian baths, complete with 3,500 gallon marble plunge bath, showers, rest rooms, &c.

Particular attention has been given to the hot water supply system, as this has to provide the necessary pressure and volume on all the floors. To enable this to be attained, the top floor accommodates the special individual baths already referred to, where a high water pressure is not essential, and six porcelain enamel or teak baths are installed on this floor.

On the first floor is a special room for water massage with Vichy and Scotch douches, needle sprays, &c., and these fittings alone require large volumes of water at adequate pressure. All these fittings include blenders, while the temperature of the water is thermostatically controlled. The whole floor has been rendered water-tight by covering with sheet-lead. There is 450 gallons water storage in the roof, fed by a 1¼-in. main.

Also on the first floor are other aeration, foam, wax, and specialized baths, together with exercise room, rest rooms, and dressing cubicles. On the ground floor is a striking entrance with beautifully decorated lounges, together with parlours for every kind of face massage, beauty treatment, manicure, and chiropody.

The basement is particularly interesting, and is devoted to the Turkish and Russian baths and plunge, showers, rest rooms, &c.

Why Gas was Chosen.

The first problem that presented itself when the scheme was first conceived was naturally the medium for providing the enormous amount of heat required for various purposes and in various forms in such an establishment. Points such as boiler room space, cleanliness, amount of attention required, ease of control, and noise (a most important matter this, for absolute quiet must be maintained in the rest rooms) had to be considered. The only fuel which could satisfactorily fulfil all these conditions was gas, and gas has therefore been employed. It is used for every heating purpose—hot water supply, central heating for the whole of the building, steam heating for the Russian bath, and air heating for the Turkish bath, as well as for a small amount of catering.

The plant supplying all the hot water fittings is a battery of six "Empire" boilers capable of heating 222 gallons per hour. They are coupled to a storage cylinder of 300 gallons capacity. This storage cylinder is shown in the accompanying illustration; but it is worth noting that the lagging which appears in the photograph has since been removed so that the boiler room may be used for towel drying, and in this connection a special ventilating system has been provided to obviate condensation from the moisture in the towels. The boilers themselves are thermostatically controlled, while the whole of the piping outside the heating chamber is effectively lagged.

Central Heating.

For the central heating three "Rex" gas-fired boilers are provided—one for each floor. Air temperature thermostats are provided on each floor, so that the attendant in charge can regulate the temperature in her own department without affecting the conditions on any other floor. For instance, the temperature required on the ground floor and in the reception rooms would be kept lower than that in the treatment rooms upstairs, while again, in the individual bathrooms on the second floor, where the patient is almost entirely submerged, the temperature need not be as high as in the massage rooms.

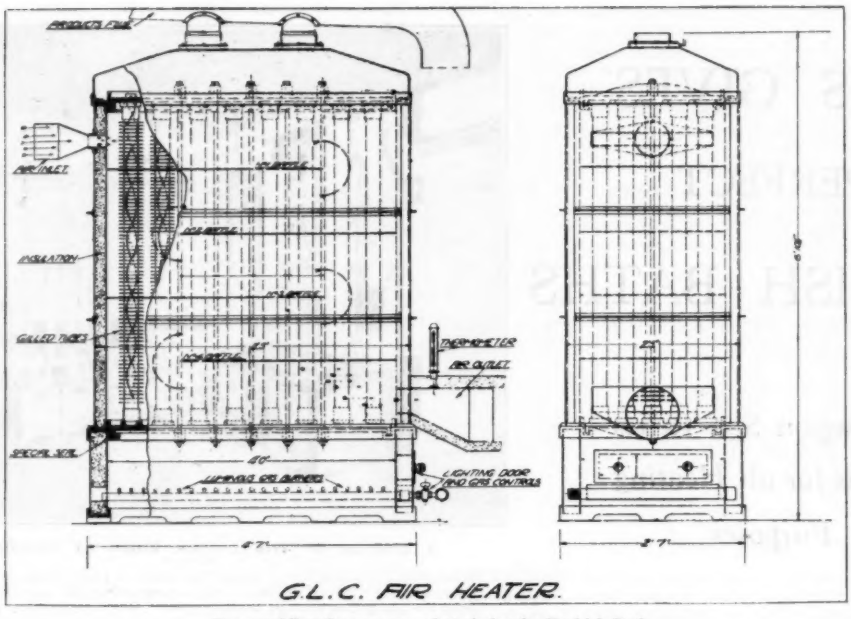
The central heating boilers are also fitted with water temperature thermostats to prevent overheating and assist the drying of the towels in the boiler chamber. The central heating system serves 48 radiators at low pressure by gravity circulation, and the combined output is in the region of 420,000 B.Th.U. per hour.

For the Russian or vapour bath steam heating is required, and a room is specially designed with a curved ceiling and the necessary seats and hose. The steam is provided by an automatically-controlled "Solar" vertical multi-tubular boiler with an evaporation of 60 lbs. per hour. The boiler is heated by luminous burners which shut down to a negligible consumption when no steam is being used. This boiler also supplies steam for warming the marble slabs on which the patients receive massage after the baths.

Gas-Fired Air-Heater for Turkish Bath.

The Turkish bath consists of three rooms—namely, to use their technical nomenclatures, the Tepidarium (125° F.), the Calidarium (160°), and the Laconicum (200°). These rooms are fully insulated, the ceilings being covered with slag wool 6 in. thick, while the outside walls are built hollow and filled with the same substance.

As contrasted with the humid heat (vapour) required for the Russian bath, the Turkish bath must be supplied with absolutely dry heat, and a most interesting G.L.C. gas-fired air heater has been installed for this purpose. A diagram of this heater is shown. The air is taken in through a



For providing the necessary hot air for the Turkish Bath.

" Ventex " oil filter, extracting all the small dust particles which, if allowed to pass through the heater, would scorch and thus create an unpleasant odour in the baths. The air is blown through the heater at the rate of 50,000 c.ft. per hour and is raised to 380° F., at which temperature it passes into the Laconicum, or hottest chamber, through a cavity in the wall at ceiling level.

This air-heater consists of a battery of gilled tubes through which the products pass to the chimney, the air being driven through the gills with suitable baffles in the flueways to give a long travel. Luminous burner jets in eight rows are employed, combustion being maintained under natural draught conditions. The consumption of gas on full load is about one therm per hour.

The automatic controls consist of a heat detector in the Laconicum, connected to a control valve in the gas main and a further control valve operated by the fan, so that when the latter is not running the gas cuts down to by-pass.

Waste hot air from the Tepidarium is conveyed by ducts to heat the remainder of the rooms adjoining the baths, so that there is no loss of heat; though the air can be diverted externally if necessary during the summer months.

All the water used in the Spa is softened by a " Zepho " softener. The special fittings for the various treatment rooms were supplied by Messrs. Shanks.

It is of interest to recall that the central heating of the residence in its original private form was carried out by coke in conjunction with low-pressure hot water radiators, subsequent to which oil-fired equipment was tried. Gas, however, was finally preferred. The gas supply enters the premises by a 3-in. service and passes through an 1,800 c.ft. per hour high-capacity meter.

Particular credit is due to Messrs. Thomas Potterton (Heating Engineers), Ltd., of Ravenswood Road, Balham, S.W. 12, for designing the equipment of the building and installing the gas apparatus, the neat and compact lay-out of which is noticeable throughout.

The more one appreciates the amount of heat required for such premises as this and the varying conditions under which it is utilized, the more it must be realized that gas is the only fuel which could have satisfactorily fulfilled all the requirements. For it should be emphasized that the whole installation is completely shut down every evening at 6 o'clock—or before this if necessary—not even a by-pass being left burning. At 7 o'clock each morning the caretaker re-lights the apparatus, and by the time treatment commences the full working temperatures have been reached on all the plant. The Turkish bath rooms, of course, as a result of the effective insulation, do not lose a great deal of their sensible heat during the night.

We are indebted to the Management of the Palace Gate Spa and also to Messrs. Thomas Potterton for the opportunity of inspecting this very interesting installation, which is indeed a triumph for gas.

Gas at the South London Exhibition

Fine Display at the Crystal Palace

Twelve months ago we suggested that " Bigger and Better " year by year was not only the aim and object, but definitely the achievement, of the organizers of the Gas Exhibit at the annual South London Exhibition—opened at the Crystal Palace by the Prime Minister on March 7. Were it not for the fact that the gas display has steadily increased in both size and attractiveness at each of the three preceding Exhibitions—and shows every sign of continuing to do so—we might almost be tempted to describe this year's effort as " Biggest and Best." Indeed, so far as comparisons with previous displays go, this is the case. The Exhibition will remain open until March 17.

The exhibit is divided into two sections—a main stand on which domestic appliances are displayed, and a subsidiary stand, adjacent to the main exhibit, on which demonstrations of one kind and another are in progress throughout the whole period of the Exhibition.

The Central Exhibit.

The main stand, which occupies a central position in the Exhibition and towers above its neighbours, calls attention to the supremacy of gas from all parts of the Exhibition. Constructed in cream plaster-work with red letters mounted on metallic background for the slogans, the stand rises to a height of close on 40 ft., measuring some 56 ft. by 36 ft. overall, the superstructure being mounted on fluted columns. The stand was designed, as in previous years, by the South Metropolitan Gas Company, and equipped by the South Suburban Company.

The primary intention of this fine exhibit, treating it as a composite whole, is to demonstrate the response of the Gas Industry to the modern trend of interior decoration and the Industry's reply to the demand for colour in the home. It further demonstrates to the public that gas service is not merely labour-saving, but is also within the reach of every purse.

Forming the " nerve centre " of the exhibit is a display which cannot fail to draw the attention of the public by its very novelty and fascination. This is a rectangular pool of water 15 ft. by 12 ft., the sides and bottom of which are coloured in an attractive shade of green. Into this pool six geysers and two multi-point heaters continuously spray steaming hot water from the four corners, the multi-point machines operating through sprays from ceiling level. The

VIEWS OF THE SOUTH LONDON GAS EXHIBIT AT THE CRYSTAL PALACE.

pool is attractively illuminated from above through a glass-panelled ceiling, while on either side ventilating gas lamps effectively withdraw any excess of steam rising from the pool. This stretch of water and the steaming fountains playing into it form a most impressive and fascinating spectacle; but it is not designed merely to attract the attention of the public and nothing more. It has, if we may call it such, a moral—and this is to demonstrate by means of the different appliances at work that gas can supply all the hot water requirements of every household, from the little geyser for the bachelor flat to the multi-point heater for the largest domestic establishment.

There is no need to dilate here upon the individual appliances exhibited on the Gas Stand; suffice it to say that a most representative selection of gas apparatus for all normal domestic requirements is tastefully set out. The gas fires and radiators are shown in attractive coloured finishes and in various settings to harmonize with any decoration scheme. Particular use has been made of chromium plating throughout the display, while a number of " Staybright " steel hearths emphasize the new trend towards brightness and cleanliness in the home. We may, perhaps, be excused for mentioning particularly one very pleasing little " casket " fire of Japanese design. This is known as the " Metrogas " fire and is based on the design of an original Japanese cabinet. It is beautifully wrought in iron and bronze, with doors to close in the fire when not in use.

The " Lumetro."

Reference should also, perhaps, be made to the " Lumetro " gas fire in view of its originality of design. In this fire flames flicker through a glowing incandescent fuel bed composed of small irregularly shaped pieces of fuel arranged in a firebrick setting. There are two gas burners controlled by a combination cock, gas being first supplied to the bunsen burner to heat the firebrick and fuel to a state of incandescence, after which gas may be supplied to the luminous burner by advancing the key of the combination cock, thus providing the flickering flame on top.

Smokers' sets comprising chromium-plated ash-trays and gas lighters add a touch of homeliness to the gas fire settings, while it is worthy of note that several of the fires are controlled by " standard " cocks at hand level—to obviate the necessity of bending down to operate the tap.

To enumerate quickly the other types of appliances exhibited in many models on the stand, there are portable gas fires and panel heaters, gas-heated towel rails, large gas boiler, clinical lamps, the efficacy of which in alleviating pain and certain skin troubles is rendering them increasingly popular, and, of course, gas cookers of many sizes and designs to provide for the needs—and the pocket—of any size of family. Of these the " oven-on-top " cooker is proving popular, and it may be noted that, as an additional refinement and a further little example of " gas service," all the cookers shown are fitted with pilot lighters to obviate the need for matches. Wash-copper and refrigerator complete the larger kitchen equipment.

Smokeless Solid Fuel.

A corner of the stand is devoted to a display of solid smokeless fuel burning appliances. The new " Metro " open coke grate is designed to show a glowing front within a few minutes of lighting the gas burner underneath. Samples of " Metro-Coalite," " Solarite," and ordinary coke demonstrate the care taken to provide for different smokeless solid fuel requirements.

The lighting of the gas exhibit is truly magnificent. Indirect shadowless illumination is provided, the lamps being housed in troughs let into the ceiling, while individual ceiling pendants, and wooden standards and table fittings complete the effect. A novel form of control concealed in the tassels is used with the indirect pendant bowl fittings.

A particular feature in regard to the lighting is made of distance control for gas lamps; switches which the public are invited to operate being freely distributed about the stand. The organizers of the South London Gas Exhibit have formed the opinion—and rightly so—that while the gas switch is nothing new to those familiar with the Gas Industry, there are still vast numbers of the general public who have never heard of the existence of such an asset to gas lighting.

Emphasis is also laid upon the advantages of the plug-in gas connection, and a large number of such connections are provided on different parts of the stand, together with a varied range of small gas appliances for use in conjunction therewith—such as portable fires, bowl heaters, gas pokers, gas kettle, irons, standard lamps, and so forth. The necessity for installing a gas plug alongside the hearth in

every room is stressed, for in the living room alone the plug-in connection can be utilized for the gas poker in igniting the solid smokeless fuel fire during the winter months, for the intermittent use of the portable gas heater during other periods, and for plugging in the standard gas lamp when the current fails in the case of those who light by electricity.

Altogether the main gas stand provides a very striking testimony to gas, and after dusk each evening it stands out brilliantly illuminated by powerful floodlights arranged all round in the galleries—these, of course, themselves being gas operated.

Continuous Demonstrations.

Leaving the main stand we now come to the subsidiary gas exhibit, where various demonstrations are continually in progress during the Exhibition. This stand is lighted by gas lamps, and fittings of dignified design give an effective demonstration of the use of gas for inside and outside shop lighting. The outside lamps can be lighted and extinguished from inside the premises, an arrangement which should make a strong appeal to the shopkeeper.

Dealing first with the domestic side, cookery demonstrations are carried on all the time, full dinner menus being cooked each evening in a thermostatically-controlled oven. An ingenious large-dial meter records the consumption of gas in pence as the cooking proceeds. This meter may be calibrated to cover any particular cost of gas, and it proves of particular interest to the audiences watching the demonstrations. Periodically demonstrations of waffle-making are given on special "Metro" waffle cookers designed for the purpose, one type self-contained, with plug-in gas connection, and the other being for placing over a gas ring.

Supplementary demonstrations of washing and ironing are carried on, while the South Metropolitan Company's Lady Artist is also at work on lightning cartoons and puzzle pictures, each of which points to one or another advantage of using gas. These create considerable attention.

The industrial appliances in connection with the baking and confectionery trades are of particular interest, and the various rolls, cake, and bread, &c., being continuously produced by expert chefs are consumed in one of the cafés at the Exhibition, where attention is drawn on each table to the fact that the confectionery is produced fresh each day in gas ovens on the gas stand.

The Cox "Super Heat Trap" low-pressure gas-fired baker's oven in use is known as the "Heat Trap" because of the special method employed in the circulation of the heated products of combustion, whereby heat is conserved and a uniform temperature maintained in the baking chambers. There are two burners comprising three rows of eight jets. A simple method of illuminating the interior of the ovens by means of gas burners situated on either side has been adopted, and the ovens have tiled floors which are preferred by bakers. The advantages of this type of oven, of course, are cleanliness, automatic temperature control, and freedom from smoke and smell.

Steam Supply for Bakers' Ovens.

In combination with the above oven is the "Therm-spray" steam boiler to provide the necessary supply of steam at a suitable pressure to ensure that the bread has a perfect crust. With a capacity of three gallons, this boiler has a gas consumption of less than ¼ therm per hour, and a working pressure of 25 lbs. is easily maintained. On the desired pressure being attained a pressurestat comes into operation cutting down the gas supply, thereby avoiding overheating and waste. The appliance requires very little space, as it measures but 29 in. in height with a diameter of 15 in., so that it can be easily accommodated alongside the main oven. The fittings include a governor, water level indicator, back pressure valve, pressure gauge, safety valve, and drain cock. A semi-rotary pump (hand operated) for feeding water to the boiler is also included, together with a steam injector for one oven. It is finished in polished stainless steel, and is tested to 100 lb. pressure, thus leaving a high margin of safety.

A further oven in operation on the stand is the "Wonder" oven, designed for pastries and "smalls;" it can also be used for bread-baking, this being a compact unit with a large baking capacity. It is fitted with three main decks and three intermediate decks, with a total baking area of 30 sq. ft. In operation this oven is particularly simple to manipulate, and the close control of temperature gives an evenness of bake throughout. If desired, however, the heat can be varied at either the top or the bottom of the oven as required. A thermometer gives an average reading of the compartments, while a damper controlled by the opening and closing of the gas cock prevents cold air being drawn through the oven when the gas is turned down.

Also shown in operation is the "Metro" doughnut fryer, the pan of which holds approximately four gallons of oil. The heat is supplied by means of two low-pressure gas burners, having separate controls, while the insulation is such that radiation losses are low. When the fryer is not in use a hinged lid keeps the pan free from dust and flour, and when frying is in progress the lid turns back to form a draining board for the cooked doughnuts. The overall dimensions of the pan are 6 in. deep by 20½ in. wide by 16¾ in. back to front, the capacity being about three dozen doughnuts.

The effective lighting of oven interiors, now made necessary by the increased use of steam in bakehouses, can be provided by gas. The gas-illuminated light box on view is made by the Ellerstyle Engineering Company. This light box is fitted with an incandescent gas burner operated by means of a switch on the oven front, and the complete fitting is attached to a slide which allows of easy access to the burner for cleaning purposes. An iron disc, controlled by a handle on the oven front, protects the glass when firing side-flue ovens, and the burner is provided with a by-pass so that it can be switched on at will. This is a great improvement on the old pattern where it was necessary to stretch the arm through the box.

These baking demonstrations are causing intense interest among the public and also to many bakers who do not use gas.

Both stands are adequately staffed by attentive representatives. To complete the gas service for visitors to the South London Exhibition, an interesting review of the different phases of gas usage in the modern home appears at the beginning of the Official Catalogue.

It may also be mentioned that the model homes at the Exhibition are being effectively floodlighted by gas after dark. A number of other exhibiting firms are also either showing or demonstrating with gas appliances—among the former Messrs. Clarkhills, Ltd., whose stand is entirely devoted to a display of gas water heaters, including their new "Thermo" multi-point apparatus.

"K-B" Oil Film Filters.

An Accessory of Gas Air-Heating Plant.

On another page of this issue is described and illustrated an air-heating plant for Turkish bath purposes, an integral part of which equipment is an air filter of the oil film type.

This is but one example of many kinds of gas heating equipment of which the oil film filter is a necessary accessory, and a few particulars may be of interest to our readers of oil film filters by Messrs. James Keith & Blackman Company, Ltd., of 27, Farringdon Avenue, E.C. 4, on the subject of which they have recently issued a catalogue.

The general atmosphere is heavily charged with suspended matter, consisting of minute particulars of soot, tar, ash, sulphur, grit, &c., all acting as possible carriers of bacteria. The "K-B" oil film filter provides an efficient, convenient, and trouble-free means of cleaning air employed for the multiplicity of ventilating services demanded by present-day circumstances without altering its temperature or humidity. Not only is an air filter necessary when healthy conditions are to be maintained, but it will also be found indispensable to the many manufacturing processes where a supply or circulation of absolutely clean air is essential.

"K-B" filters employ an adhesive and absorbing oil film as the filtering medium, and are made up in convenient sized units, each capable of filtering 750 c.ft. of air per minute and complete in itself. The filter cells themselves are light, compact, and easily handled; of metal construction throughout, and therefore indestructible. The special oil employed is of a quality that retains its body over long periods, will not dry up, and is practically non-inflammable. The general construction of the K-B Units is as follows: Each unit, weighing approximately 35 lbs., is made up of a frame and cell. Panels may be built up of the required capacity for any particular volume to be dealt with.

With regard to efficiency, Messrs. Keith & Blackman state that it is possible to guarantee, with a filter in normal working condition, the removal of not less than 98 to 99% of the solid extraneous matter in the atmosphere.

Midland Association of Gas Engineers & Managers

ANNUAL GENERAL MEETING

There was a good attendance at the annual general meeting of the Midland Association of Gas Engineers and Managers held at the Grand Hotel, Birmingham, on Thursday, March 8. Mr. T. H. POULSON (Stafford) occupied the chair during the earlier part of the proceedings.

A cordial welcome was given to the President of the Institution of Gas Engineers (Mr. F. P. Tarratt) and to Mr. F. G. Shaw, the President-Elect of the Manchester District Association.

Mr. TARRATT, in expressing his thanks, said the Institution looked for and got a great deal of assistance from the various District Associations.

Mr. SHAW also expressed his appreciation of the welcome.

The CHAIRMAN proposed the adoption of the report and accounts.

Mr. R. S. RAMSDEN seconded, and this was agreed to.

Mr. F. C. BRIGGS (Dudley) proposed the adoption of the report of the Midland Commercial Gas Association. The Association now had 75 members and held meetings about once every two months. He was asked to take the chair for 1933, and Mr. A. Mackay was elected Vice-Chairman. Mr. Ramsden continued for the fourteenth year as Hon. Secretary and Treasurer. The Association owed an enormous debt to him for the work he had done, as it often entailed the circulation of questionnaires and the tabulation of the reports received. As he was now to be their President Mr. A. G. Williams, of Wolverhampton, was to take on the work. The Association had 100 members and the Midland Commercial Gas Association 75. He thought it would be very much to the interest of all members of the Association to join the M.C.G.A., as excellent information was available which could not be obtained in any other way.

Mr. H. DAVIES (Chesterfield) seconded, and the report was adopted.

The CHAIRMAN expressed thanks to Mr. Briggs for the report and for the excellent work he had done on the M.C.G.A.

Mr. BRIGGS also presented the report of the Midland District Education Committee. He said that the advice of the Committee was appreciated, and he thought it was worth while keeping the Committee going. A large number of students took examinations and a high proportion came from Birmingham, but it was felt there were many potential students in the area who were not being encouraged to come forward for the necessary technical education.

Mr. A. ROBERTS seconded the adoption of the report, which was agreed to.

Mr. RAMSDEN said for some years it had been their custom to elect the incoming President as their representative on the Council of the Institution of Gas Engineers, but this year the Committee had agreed unanimously to depart from custom and take full advantage of their good fortune in having a man like Mr. Poulson on the Council by keeping him there for another year. He moved Mr. Poulson's re-appointment.

Mr. J. BRETTLE seconded, and the resolution was carried.

The CHAIRMAN moved that the following be appointed to represent the Association on the Midland District Education Committee: Messrs. R. S. Ramsden, A. Roberts, F. C. Briggs, and W. G. S. Cranmer.

Mr. E. B. TOMLINSON seconded.

Mr. E. L. Adlington (Worcester) was elected an Hon. Member and the following were elected members: Mr. J. E. Mattock (Shepshed), Mr. R. Prince (Loughborough), Mr. R. J. Milbourne (Wellington), and Mr. C. C. Wood (Wellingborough).

The CHAIRMAN made a sympathetic reference to an old and esteemed Past-President, Mr. J. Young, who had died recently. He was an Hon. Member of the Association and was elected nearly 50 years.

The members stood in silence as a mark of sympathy.

The CHAIRMAN said another milestone had been reached, and in laying down his Office he was conscious of many shortcomings. They had an excellent man to fill the position he was vacating. He had known Mr. Ramsden for nearly 30 years and he was sure he would do his utmost to forward the interests of the Association. He wished him a happy year of office.

Mr. Ramsden was then formally installed.

Mr. RAMSDEN expressed appreciation of the honour which had been conferred upon him and thanked Mr. Poulson in the name of every member of the Association for his services during the past year.

Mr. TOMLINSON, who seconded, said they had had a notable and profitable year.

The resolution was heartily carried and the Chairman presented Mr. Poulson with a Past-President's badge as a memento of his year of office.

Mr. POULSON, in responding, said he was glad to see Mr. Pooley present, because he gave him his first step on the ladder in the Gas Industry.

The PRESIDENT expressed regret that Dr. H. Mason, Chairman of the Leamington Priors Gas Company, was unable to be present owing to indisposition. Dr. Mason had asked him to invite the Association to visit Leamington on May 17.

PRESIDENTIAL ADDRESS

OF

R. S. RAMSDEN, M.Inst.Gas E., General Manager and Engineer, Leamington Priors Gas Company.

As I had to leave the meeting of our Association last October before the election of Officers for this year took place, let me take this belated opportunity—but the first which has occurred—of thanking you all, most sincerely, for the high compliment which you have paid me, and indirectly the Leamington Priors Gas Company, in choosing me as your President for 1934.

Among the rules of our Association I have not found any which settles definitely what may or may not be done at the annual general meeting, and this afternoon I propose to talk about matters which have interested me during the last few years and then to ask you to give your views on them. This, I know, is a departure from usual practice, and I appeal to you to make this meeting one which all shall say has been worth while attending on account of the discussion.

JUNIOR ASSOCIATIONS.

As most of you know, my predecessor at Leamington was the late Mr. Thomas Berridge—a man with a deservedly high reputation as a wise and capable organizer and administrator in the affairs of the Gas Industry, and one to whose memory many of us younger men (as we were then) owe a debt of gratitude for his kindly help to us, individually and collectively, in the early days of the Junior Gas Associations. These have gone on and flourished, and I believe that all of us encourage the members of our staff to belong to them, give them facilities for taking an active part in their work, and, I hope, see that our undertakings pay their reasonable expenses in attending Junior Gas Associations and similar meetings. It is well worth while.

COAL.

One of the things which struck me when I went to Leamington in 1918 was the comparatively large number of small contracts for coal which were running, but in the troublous years that followed I appreciated my predecessor's wisdom and have continued and extended his practice. Except in times of national stoppage all sources of supply do not fail at the same time.

When we replaced the whole of our horizontal settings with verticals in 1928 I wondered whether we should have to change our practice and restrict the number of kinds of coal purchased, but our contractors for the installation and one or two brother managers whom I consulted told me that it would not be necessary, and the only change that experience has shown desirable has been to drop the use of very small nuts.

Largely with a view to improving the quality of our coke we have, during the last few years, persuaded our coal contractors to embody an ash clause in their contracts. If the ash exceeds an agreed percentage the price is liable to a reduction—on an increasing scale as the ash increases. A sample barrow load is taken by diverting a thin stream of the coal, after it has passed through the breaker and elevator, as it is being carried by the lip-bucket conveyor to the overhead hoppers. The samples are tested, sometimes in our own laboratory and sometimes by an independent analyst, and generally speaking the results agree

fairly closely. We never give any information to the outside analyst as to what coal he is testing. From recent developments in dry-cleaning processes it would appear reasonable to require collieries to supply coal and nuts with a low moisture content as well as a low ash content.

It would be interesting to know what is the general practice in the Midlands as to the length of time that coal stacks are allowed to remain untouched. My practice has been to stack coal in the open to a height of 9 to 12 ft. and to leave it alone until it has been required to make good an actual shortage in deliveries.

Purification.

Last August we had an unusual experience with our purifiers. We have four boxes, in which the flow of gas is downwards, which are worked in forward rotation—three on and one off—and a pair of small catch boxes, in which the flow of gas is horizontal, which are usually worked in parallel. The catch boxes are controlled by hydraulic valves and, either through the water in these valves overflowing when gasholder pressures increase or through condensation, the bottom 12 in. or so of oxide gets saturated with water. They are generally emptied and refilled with a mixture of new and once-used oxide during the summer, although they are not called on to do much purifying.

[Photo. by Walden Hammond, Leamington Spa.

THE PRESIDENT.

R. S. Ramsden, of Leamington.

Mr. Ramsden has been General Manager and Engineer to the Leamington Priors Gas Company since 1918, when he succeeded the late Mr. Thomas Berridge, M.Inst.C.E., J.P. Previously he was in charge of the Burton-on-Trent Gas Undertaking, following his father, the late Mr. F. L. Ramsden. Mr. R. S. Ramsden was elected a member of the Institution of Gas Engineers in 1909, and was President of the Midland Junior Gas Association in 1910.

This re-filling was done as usual last year and the boxes were put to work again, taking clean gas from the last big box, but within an hour or so they showed a stain at the outlet. We consulted a particular firm supplying prepared oxide of iron who have made a study of purification problems and are always willing to help gas undertakings, and their theory appeared to be that our trouble was due to the formation of sulphuretted hydrogen by the interaction of carbon disulphide with an excess of ammonia present in the gas due to the unusually high temperature prevailing in these open-air boxes—the air temperature in the shade was reaching 85° at the time. Accordingly we passed the liquor supply to the rotary washer and the first tower scrubber through a coil of pipes in a tank with water flowing through it, and increased the supply of town's water to the second scrubber; but it was not until November, when the atmospheric temperature was about 42° in the daytime, that we were able to pass the whole of the make of gas through the catch boxes and keep a clean test paper at the outlet. It will be interesting to learn whether other members have had a similar experience and how they have got over it.

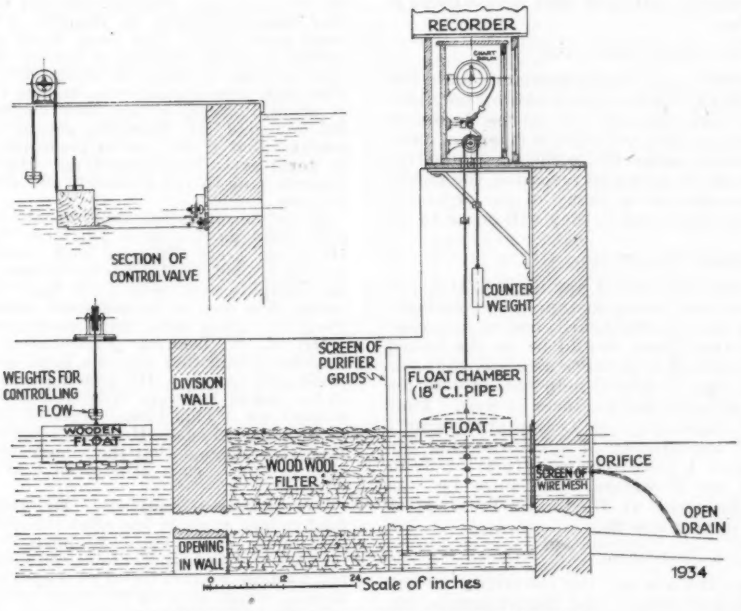
Disposal of Effluent from Sulphate Plant.

The change-over in our carbonizing plant from horizontal to vertical retorts practically coincided with the putting into operation by the Corporation of settling tanks and bacterial filters for the treatment of the town sewage in place of the previous method of pumping it onto farm land about two miles from the town, and during the very severe weather of January, 1929, some trouble was experienced with the effluent. Up till then our waste liquor had been allowed to flow through a settling pond with baffle walls and thence to the sewer at the same rate as it came from the sulphate of ammonia plant, but after this we agreed to regulate the flow so as not to exceed a definite quantity per hour, and to construct an additional settling pond and spill-way. At first the regulation was effected by restricting the flow to what would pass through a short length of open ended wrought-iron tube built into a brick wall. Later on, we replaced the short length of tube by a monel metal orifice plate forming part of a flow-recorder (see diagram). A float on the inlet side of the orifice plate is connected by a chain to the recorder mechanism which converts the head of liquor into rate of flow in gallons per hour by means of a grooved roller, the line of the groove moving the pen proportionately to the rate of flow corresponding to the head of liquor above the orifice. As the recorder is fixed over the effluent liquor it is placed in a wooden hut made as nearly air-tight as possible with a silica-gel desiccator placed inside to absorb any water vapour which might otherwise cause corrosion of the somewhat delicate parts of the instrument. The float, which is made of stainless steel, works in a separate chamber in order to avoid trouble with deposit.

A further development was to increase the flow during the day-time and reduce it during the night-time so that it should correspond more closely with the day and night flow of the sewage, the ratio being two to one. In order to do this it was necessary to raise the walls of the waste liquor settling pond so as to find room for the excess of the night production, and to introduce some fairly simple arrangement for regulating the flow from the settling pond to the filter chamber leading to the flow-recorder. My chief assistant devised such an arrangement (see diagram), the flow being controlled by the head of a three-quarter inch bolt, turned to a hemispherical shape to fit the valve seating. It is made adjustable for various flows and after adjustment is secured by a lock-nut. The automatic control is made by means of a large wood float at the end of two bars which, with the plate carrying the bolt, form a bell-crank lever, and so increase or decrease the opening as the float falls or rises. The reduction in night flow is obtainable by adding counter-balance weights to a cord attached to the float and passing over a pulley, thus increasing the buoyancy of the float. The valve works on the usual float-valve principle, but is of very simple and robust construction to meet the conditions under which it works.

Regulating the flow of waste liquor so as not to exceed the agreed quantity per 24 hours necessitated providing storage for the surplus produced during the time that the sulphate of ammonia plant was at work. The site of one of our old horizontal retort benches was the most suitable place for the storage tank and prices were obtained for one of 100,000 gallons capacity. A cast-iron tank above ground would have cost about £1,300 without foundations, and in steel about £750 including foundations, but the makers would not guarantee that the steel tank might not be adversely affected by the waste liquor. A reinforced concrete circular tank built under ground to a depth of 6 ft. would have cost about £1,000, and after having practically settled on this form of construction it was realized that it would be more convenient to convert part of the pit formed by the removal of the producers and flues of the old horizontal settings and the subway on each side into a tank with a strong flat roof level with the surrounding yard. This was finally constructed with a top designed to carry a couple of 12-ton capacity steam wagons, and with the bottom strengthened to withstand a head of 15 in. of water outside when empty at a cost of under £1,300. After having passed a fairly stringent test for being water-tight, the whole of the inside (top, sides, and bottom) had three coats of dehydrated tar as a protection to the concrete from any action of the waste liquor. Each year since it was built it has been emptied and examined, and found in good order. The inlet pipe conveying the hot waste liquor is carried close under the roof slab to the centre of the tank so as to keep the hot liquor away from the walls.

In all the work connected with the disposal of waste liquor and the construction of the large storage tank I should like to record my sincere thanks for the help which



ARRANGEMENT OF EFFLUENT FLOW RECORDER.

I received from Mr. Charles F. Botley, of Hastings, and other members and officers of the Liquor Effluents and Ammonia Sub-Committee of the Institution of Gas Engineers, and from Mr. A. C. Carter, F.I.C., District Inspector under the Alkali, &c., Works Regulation Act, Ministry of Health, and his colleagues.

Accidents.

We all take precautions for the prevention of accidents, and when they do occur we try to improve our preventive methods. In the hope, therefore, that it may prevent a repetition I recall two fatal accidents with which I have been concerned. In the first, which did not happen at Leamington, a man was standing on a board about 1½ in. thick supported on two trestles. I believe he was lime-washing a wall. The board broke suddenly, the man fell, striking his head on some ironwork, and he died. Since then scaffold boards have had to be not less than 2 in. in thickness and to be tested by jumping on them when only a foot or so from the ground.

In the second case a 12-in. gas main was being laid by a contractor with an excellent reputation in the footpath of a road on the opposite side of which there already was a gas main, the house service pipes on the same side as the new main being disconnected from the old main and connected to the new one as the work proceeded. At one particular house the front of which had a shop window of sorts which gave one the impression that the premises were empty, the contractor's foreman, who had been with his employers twenty-seven years, was unable to get any answer to his attempts to notify the occupier that he was going to disconnect the service pipe, and later on that he was going to connect it to the new main. About six hours later the son of the house returned, when the body of his father aged 86 was found in a chair and a very serious escape of gas was discovered in the cellar. The five-light meter had become dislodged from the stays on which it had previously stood and the ⅝-in. composition lead pipe connecting it to the main tap on the ¾-in. service pipe had broken close to the joint with the main tap. A petrol-driven rammer had been in regular use for consolidating the gas main trench as it was filled in, and the coroner's opinion, confirmed by the jury who brought in a verdict of accidental death, was that the action of the rammer had disturbed the pipe and caused the meter to jump off the stays carrying it. You will no doubt draw your own conclusions as to the lessons to be learned from this fatality. Among other things it confirmed the practice which we have followed for some years of using lead pipe not less than 1 in. bore when fixing new or altering the connections of old meters.

Meter Connections.

With regard to the connecting of meters generally I should like to acknowledge my indebtedness to the valuable hints on this work, and on other practical points in gas fitting, contained in the little books by Mr. R. N. LeFevre, of the Gas Light and Coke Company. In all new work where the outlet pipe cannot be run with a fall from the meter, and every time we find a meter with condensed water in it, we fix a waste pipe on the outlet, arranging if possible for the condensed water to affect the supply to some appliance before it reaches the meter itself.

Dry Gas.

If we sent out dry gas I suppose we should be free from all condensation troubles, and I hope that those members who have adopted gas-drying processes will tell us whether there are any serious drawbacks to the system and whether oil films on gasholder tanks have any appreciable effect on condensation in district mains.

Education of Gas Fitters.

The mention of Mr. LeFevre's booklets, which are supplied to all our gasfitters, leads to the question of the general education of gasfitters; and if there are any of our members whose undertakings are not helping in the running of classes dealing with the practice of gas-fitting and kindred subjects I would strongly recommend them to look into the matter and see what can be done. We find them of the greatest help in training youths fresh from school and bringing them steadily through the grades of stores-boy, fitters'-mate, public lamp attendant, and junior fitter to that of second-class or first-class fitter. I believe that whatever success we may have achieved is due to the co-operation of the local Director of Education and his Committee, to the fact that four of the classes which our boys and young men are required to attend as a condition of their employment are taken by my chief assistant, a technical assistant, our outdoor representative, and his deputy respectively. My Directors take a keen interest in this training, and a feature is always made by my Chairman at our annual meeting of shareholders of presenting to the successful candidates the certificates which have been awarded by the Institution of Gas Engineers and the City and Guilds of London Institute, the special prizes awarded by the Directors to the two candidates who have done best in the examination, and two or three other prizes given by the members of my staff who act as instructors. When young fitters' and fitters' boys' wages are reviewed annually evening classwork and examination results are taken into account as well as general progress and conduct.

Information as to Remuneration of Staffs.

The scale of wages laid down in the Gas Fitters' Agreement of the Midland Regional Gas Industrial Council is very useful in settling junior fitters' wages, and I believe that if the Midland District Committee of the Federation of Gas Employers would obtain from members particulars of the wages paid to their junior technical and clerical staffs, and circulate a summary of the information to members, it would be helpful to managers in deciding whether members of their staffs were or were not being adequately paid.

Gas undertakings generally are reasonably prosperous concerns and should not, in my opinion, cut down working expenses by employing women and girls on work that can

equally well be carried out by men and boys unless there is some very special reason.

Activities other than Gas.

Gas company directors and committeemen and the officers and employees of gas undertakings can by membership of their local governing councils, and social, business, and sports organizations, render valuable service not only to the community but often indirectly to the Gas Industry, and this Association should be proud to recognize the public service which is being rendered by many of its members. It is not necessary to mention names; they will occur to all of us.

Engineer Directors.

In connection with company-owned gas undertakings, it is encouraging to note in how many instances the engineer has been promoted to a seat on the board, and in any case it is an excellent thing that there should be on the board one member who has practical experience as a gas engineer and administrator. He can be a real help not only to his co-directors but to the manager and engineer as well. That has certainly been our experience at Leamington, and I should like to take this opportunity of acknowledging the friendship and help which I have received from Sir John Ferguson Bell, one of my Directors, ever since he was appointed Consulting Engineer at Burton-on-Trent after the death of my father when I was 23.

Gas Lighting.

In Leamington neither the gas nor the electricity undertaking belongs to the town council, and the argument for the corporation using one source of energy rather than another because it is its own product does not apply. Gas for lighting and cooking is adopted throughout in Council houses and the houses built by the local Slum-Clearance Society, and in a number of these houses gas fires and water heaters have been added. Gas lamps are used throughout for public lighting. With the exception of the high-pressure lamps the whole of the lamps, clock controllers, and columns belong to the Corporation, and the maintenance is carried out under contract by the Gas Company.

Conclusion.

There is, I believe, an expression used by sailors when officers and crew live and work together amicably that they form a "happy ship." I may have got it wrong, having no pretensions to nautical knowledge, but whatever the words are the expression can very fairly be applied to the Gas Industry in general and the Leamington Priors Gas Company in particular; and in concluding these odds and ends of remarks I wish to record my sincere appreciation of the treatment which I have received at the hands of my directors, my colleagues on the staff, and all employees of the undertaking, not only for the facilities which they have given me for accepting the honourable position of your President, but during the whole of the fifteen years that I have been at Leamington. I thank you gentlemen for having borne with me so patiently, and I hope that you will now do as I suggested at the beginning of my remarks —treat this as an attempt at a paper, and give your own views on any of the points which I have raised, so that, although listening to me may have been a waste of your time, the discussion will make it worth while.

Discussion.

Mr. T. H. Poulson (Stafford) proposed a cordial vote of thanks to Mr. Ramsden for his address. He had been courageous in inviting discussion, and had brought forward many points which had freshness.

Mr. E. B. Tomlinson (Birmingham) seconded. There were many points which could give rise to a long discussion. Purification, for instance, should be dealt with because there was considerable trouble at some works last summer. In regard to stacking coal, in Birmingham, up to about ten years ago, they used to stack to a height of 20 ft., but in later years under certain conditions they had gone to 30 ft.

The resolution was heartily carried.

Mr. Pinkney (Birmingham) said that at Saltley purifier trouble arose after the Whitsuntide shut-down of 24 hours. All the primary boxes showed a stain, and there a slight stain on the catch boxes. They reversed the primaries, and were able to clean up the catch boxes on A set, but B set did not respond and gradually became worse until they had to shut out the set of six boxes. They found it necessary to change all the four primaries, the first catch three times, and the second catch twice before the set would work to its ordinary throughput of about 2½ million c.ft. per day at the beginning of August. The gas during this period contained on an average 5 grains of ammonia. The average inlet temperature to the boxes was about 75° F., and part of the time the outlet temperature of the set reached 95°. The conclusion they came to was that trouble was caused by the fairly high ammonia content together with the increase in temperature.

Mr. F. C. Briggs (Dudley) said the stacks at Dudley were about 20 ft. high. He was convinced a certain amount of heating went on, and, although they did not touch the stacks unless they were compelled, he thought at the end of ten or fifteen years they should take them down and restock. He entirely agreed as to the training of fitters. His Company's best fitters were youths of about 24 whom they had trained themselves. They now apprenticed them, because they found previously that at about 19 years of age their neighbours appropriated them. He was glad Mr. Ramsden got so many shareholders at his meeting that it was worth presenting certificates. He wished he could get a bigger meeting. The idea of having details of salaries paid to the technical and clerical staff was an excellent one.

As to the employment of women, his experience was that a girl would do a routine job more satisfactorily than a man. He found great difficulty with maintenance men, because if he had a good one he wanted to progress and become a fitter. He thought girls, with their light fingered touch, would be better than men on incandescent maintenance work. He asked about the street lamp maintenance scheme at Leamington.

Mr. F. P. Tarratt (President of the Institution of Gas Engineers) said they stored a large quantity of coal both under cover and outside. His practice was to stack it up to about 20 ft., and he had very little trouble with fires after it had been stacked for a long time. Most of the trouble had been from recently stored coal. He did not believe in changing his stocks. He was very glad that the Committees of the Institution were able to render such help as that to which Mr. Ramsden had referred.

The Chairman, replying to Mr. Briggs, said the Corporation used to look more or less after the public lamps, but complaints were made about the light being bad, and it was arranged for the Gas Company to maintain the lamps. The cost was put at £600 a year, based on approximately 10s. per lamp per annum, which covered the wages of the youths, part of whose training to be fitters was to spend a year or 18 months as a lamp attendant. The £600 was for lamps then existing and 10s. or 11s. per annum was to be paid for additional lamps. The Corporation demurred at the cost but eventually agreed, and the scheme was continued until the cry came for economy about 1931. The Borough Engineer appealed to the Company to help to cut down expenses, and it was agreed that if the Corporation would do all the public lighting by gas the figure should remain at £600 for three years. They were putting up lamps very rapidly, and instead of its being £600 *plus* 10s. it was £600 all round for as many lamps as they liked to install.

Mr. C. M. D. Belton (Shrewsbury) inquired what percentage of ash was stipulated in the contracts. As to liquor, he was a long way from the sewage works, and owing to the large admixture on the way apparently no harmful effect was felt whether he was making sulphate or not.

He had had some experience with dry gas, and he could assure them there were no serious drawbacks to the system. In his experience in the last few years he had found the process one that had absolutely no troubles. Mr. Ramsden was fortunate in having gas and electricity in competition without either belonging to the municipal authority. Unfortunately in a great many places there was a bias in favour of electricity because it belonged to the corporation.

Mr. H. J. Woodfine (Wellington) said he had coal which had been in stock for seven years, the bulk of it under cover. He thought when it was put into stock it was best to keep it for a real emergency and leave it until it was required. He had arrived at an agreement with his auditors to take into account the cost of putting the coal in and taking it out, and also the loss in value was written off, about 7s. a ton. His idea was to bring it down so that if there was an emergency whoever had to deal with it would not have a bad year. The question of crude liquor was an important one. It did the Industry no good to get into trouble with the local surveyors, and it was up to the Gas Industry to see they discharged the liquor, as many did, in a satisfactory manner. He agreed as to the advantage of having information about staff remuneration. In regard to female labour, he was just introducing it. He was not satisfied with the maintenance work. They had been accustomed to rely on the monthly or two-monthly visits of collectors for bringing in complaints, but he did not think it was working very well. For many years they had had a male staff maintaining burners and appliances in the homes of the ordinary consumers, but he had determined something better was needed in the homes of the slot meter consumers. He proposed to put a young woman on each of the slot districts so that she would get round three times a year at least. If they were to hold the slot business they must see the prepayment consumer had nothing to do in order to obtain a really good light. He was convinced of the value of female labour in this respect. A woman could handle a burner or a mantle better than a man or a boy, and he was sure the woman of the house would rather talk to a young woman. He felt sure the amount of business it would bring in would more than repay the cost.

Mr. H. Davies (Chesterfield) said the ash and moisture content ought to have the attention of the Commercial Association. He thought the storage of coal depended largely on its character and its chemical composition. They knew it did not pay to store coal which contained a large amount of sulphur. He had coal stored in 1927 and he did not think it had lost much of its original value. He advised the adoption of National Safety First posters. Dry gas, he found, gave no trouble, and was very advantageous. He was pleased to know Mr. Ramsden had retained the whole of the public lighting at Leamington. He called attention to the Association of Public Lighting Engineers; it was a body with a growing influence, and he was afraid the Gas Industry was not taking the interest in that body that it ought to do. If they were not careful it would be run by the

electrical people. He persuaded two members of the Gas Industry to join the Association, and they were so interested they had not been to a single meeting. He urged members to join the Association and attend the meetings and let their voices be heard in favour of gas.

Mr. W. WILSON (Burton-on-Trent) said they stacked approximately 25% of the year's requirements to a height of 15 ft. His experience was that coal recently stacked gave more trouble than that which had been standing for a long time. He had been oil filming for 20 years, he said, and he found it most beneficial.

Mr. J. P. MCCRAE (Derby) said the fact they got fires with freshly wrought coal should be evidence that deterioration was very brisk in the early years. Therefore he thought it was foolish to touch coal stacks until they were obliged to do so. Since the dry gas process was put in the complaints had dropped 75%. He was not going to give dry gas all the credit, because there had been other things done in the interim, and the complaints had not been strictly allocated. As to the employment of women, that was a decreasing instead of an increasing liability, as in due course they got married.

Mr. T. F. E. RHEAD (Birmingham) said they had recently had trouble with gas entering a holder clean from H_2S and coming out slightly contaminated. Dr. Henry, the City Bacteriologist, was investigating the matter bacteriologically, and the Gas Department Laboratories were looking into the matter from the point of view of proximity to purifiers. So far as he knew, the few times trouble had occurred it was with holders near to purifiers—those far removed from purifiers never gave trouble.

Mr. RAMSDEN, in reply, said, in regard to the ash content clause, the agreed percentage was 6, and there was a penalty for anything over 6½%. In some instances they were strong enough to say, "No ash clause, no contract." In the case of some Derbyshires unwashed they had to agree to the ash being 7%, with no penalty under 7½%. The moral effect of the clause had been very good. He thought that if the Industry could afford to pay men and youths for work they could do as well as women, then he thought it was helping the country to employ men rather than women.

The PRESIDENT (Mr. Ramsden) expressed their appreciation of Mr. Tarratt's visit. The demands on Mr. Tarratt's time must be exceedingly heavy, and they appreciated the compliment he had paid them by coming to the annual meeting. They all read some time ago that Mr. Alfred Harrison, Editor of the "GAS JOURNAL," was going to ease up a little and keep an eye on them through his telescope from his seat as a Director at the "GAS JOURNAL" Board Room table, and they wished him every happiness in what they hoped would be a congenial though less strenuous life. He was a very old friend of many of them. The *Gas World* was celebrating its Jubilee some time this year, and to it they offered congratulations.

A New Note at the B.I.F.

An exhibit which attracted a great deal of attention at the British Industries Fair at Castle Bromwich was a cooker of novel design by SoFono, Ltd., of Waddon. Pipes and fittings are concealed; even the oven hinges have vanished. When the cooker is not in use, the back-plate folds down to cover the hotplate. The clear cut lines of the cooker blend with the most perfectly appointed modern kitchen.

The oven, with a single side burner, is of the bottom flue outlet type, and is thermostatically controlled. Careful attention has been paid to insulation, and the oven door is specially designed to provide an almost complete seal.

By an ingenious hotplate lay-out it has been possible to combine a large-sized oven, well raised from the floor level, with an overall size which renders it suitable for all but the smallest kitchens.

The grill plate is totally enclosed, with reversible burner, and is well removed from contamination by grease.

A heating chamber of generous dimensions is also provided.

The Measurement of Gas.

In a brochure bearing the above title, Messrs. Parkinson & Cowan (Gas Meters), Ltd., of Terminal House, Grosvenor Gardens, S.W. 1, devote considerable space to the most vital part of the gas meter, the membranous diaphragm, in order to illustrate the care and attention given in their factories to the preparation of meter leathers.

However efficient may be the management, the plant, and the processes of the suppliers of town gas, the diaphragms of consumers' meters will have the last word to say in the control of profits. On arrival at the manufacturers' warehouse, bales of high quality East India (Persian) sheep skins are checked and weighed. Expert sorters then examine each skin very closely, rejecting all but the most perfect, after which the thicker portions are reduced in thickness on cutting or "shaving" machines. The processes of washing, tanning, neutralizing, and fat liquoring are performed in large wooden drums specially designed to produce uniformity of the final product. After tanning, all injurious acids are carefully removed from the leather, and a laboratory test of the thoroughness of this operation is made before the leather is allowed to progress to the drying and finishing process.

Contrary to general belief, the drying of leather is one of the most difficult and vital operations. It is in this process that the skins, which Nature had intended to fit round the irregular forms of animals, must be rendered flat and free from wrinkles, and internal stresses equalized. Temperature, air circulation, and humidity are critical factors here, and only with scientific methods and equipment can the necessary uniformity be obtained. Finished skins that have passed the chemical and physical tests, are finally measured, sorted, or graded for substance, and the superficial area checked before despatch to the cutting room.

Finished skins are examined minutely for pinholes by transmitted light in a dark-room over a test lamp specially designed to protect the examiners' eyes from strain, and so avoiding the possibility of overlooking defects. Each skin is then examined by reflected light by an experienced cutter, who marks any additional blemishes to be avoided before actually planning and cutting. When cut, each diaphragm is again examined both by reflected and transmitted light to ensure that no defect has been allowed to pass.

Portions of leather not available for diaphragms are selected for quality, gauged for thickness, then cut into washers for use also in gas meters.

The brochure further deals with the meter slide valves, some account being given of recent developments on the valve plate, with their origin and history. Reference is also made to the gas passages, which are the arteries of the meter, and to the mechanical parts, while there is an explanatory note on the vexed subject of "open or closed top" meters, together with a section on the important developments in coin mechanism.

Main Gas Cookers for 1934.

The 1934 season's cooker catalogue just issued by Messrs. R. & A. Main, Ltd., of 48, Grosvenor Gardens, S.W. 1, is an attractively produced and comprehensive publication, containing particulars of several new features of interest.

One of these is the "Thermomain" oven heat indicator, which may be fitted to the oven door and shows at a glance the internal temperature of the oven during the progress of cooking. When the oven commences to heat up a red strip appears under the temperature scale, and extends to the right as the oven heat increases. Fitted as an adjunct to the "Mainstat" automatic cooking control, it provides visible proof that the oven is being maintained at the desired temperature. For ovens which are not automatically controlled the "Thermomain" is a valuable device which eliminates the necessity for periodically opening the oven door to inspect the contents.

Another item of interest referred to in the catalogue is the new "Maintrol" governor, which filters the gas before it enters the valve to prevent access of dirt, and is fitted with a safety valve so that the gas cannot escape even if any part becomes defective. It is of simple design, light in weight, being constructed of a light alloy, sturdily built, and entirely automatic in operation. It is emphasized that the device is only for attachment to an individual appliance and not for governing the whole supply to a house. It is supplied in one size only, and has been designed to maintain an outlet pressure of 20 tenths W.G.; it can, however, be supplied (to order) with a more heavily loaded diaphragm to give up to 35 tenths W.G. pressure. At 60 c.ft. per hour there is stated to be a pressure drop of approximately 5 tenths across the governor. This consumption covers practically every requirement in gas fires, radiators, ovens, and small water heaters—but not, of course, geysers. Actual tests have shown that whatever the inlet pressure up to 10 in W.G., the outlet pressure at any particular consumption up to 70 c.ft. per hour remains constant within 2 to 3 tenths.

The catalogue goes on to deal in turn with various Main cookers, a number of which are illustrated in actual colours, thus giving an idea of the attractive coloured enamel finishes to be obtained. The publication stresses the fact that although the kitchen is the workshop of the house, it need no longer be a drab, cheerless, and unattractive place. The introduction of "Mainamel" finishes makes the gas cooker an appliance of beauty as well as of the highest efficiency.

High-grade cookers, various designs of hotplates and grillers, together with details of the firm's gas wash-boilers, complete the contents of the catalogue.

South Metropolitan Gas Company (No. 1) Bill

This Bill was the first of a group of Gas Bills, consideration of which was commenced on Tuesday, March 6, by a Committee of the House of Commons consisting of Mr. David Reid (Chairman), Mr. David Davies, Lord Fermoy, and Capt. North. The principal object of the Bill is to provide that no action shall be taken by local authorities in the area of the Company restricting the choice of tenants on municipal housing estates as regards the use of gas or electricity for all or any purposes.

There was only one opponent to the Bill—the Woolwich Borough Council, which was represented by Mr. Sydney Turner, K.C., and Mr. Maurice Fitzgerald. The South Metropolitan Gas Company was represented by Mr. Tyldesley Jones, K.C., Mr. F. J. Wrottesley, and Mr. Hope. The next Bill on the list is that of the Brighton, Hove, and Worthing Gas Company, which has a similar object, and before the details of the South Metropolitan Bill were gone into the point was raised whether the Committee should reserve their decision on that Bill until the Brighton Bill had been heard. Eventually the Chairman ruled that the Committee would hear the South Metropolitan Bill and intimate later whether they would hear the Brighton Bill before giving a final decision. In the course of the discussion it was impressed upon the Committee that the Woolwich Borough Council accepted the general principle laid down in the Gas Light and Coke Company's Bill last year that tenants of municipal housing estates should have a free choice, but the point in the present opposition was a request that this general principle should not apply to a particular estate in the Woolwich Borough.

Case for the Bill.

Mr. Tyldesley Jones, K.C., opening the case for the Bill, said that what was being asked for in the Bill was already the law applying to the whole of the areas of the Gas Light and Coke Company and the Commercial Gas Company. In all there were 13 local authorities affected by the Bill, including the London County Council, but none of them was opposing except Woolwich. It was recalled that in the case of the Gas Light and Coke Bill last year, the London County Council vigorously opposed, but that body now accepted the principle decided in that Bill and was taking no action in the present instance.

In answer to the Chairman,

Mr. Tyldesley Jones said that the local authorities in the Gas Company's area owning electricity works were Battersea, Woolwich, Southwark, and Bermondsey.

Continuing, he said the Company had spent £11,250,000 on its undertaking; it employed 8,835 workpeople and had 433,764 consumers, of whom 326,904 were prepayment meter consumers, this latter indicating that a large number of their consumers were of the poorer class. The Company had 350,000 cookers on hire, of which 275,000 were let to prepayment meter consumers. All this was evidence that the Company had endeavoured to supply gas at the lowest possible price, and it had an almost unparalleled record of being pioneers in various ways in the manufacture and sale of gas. The position was that the local authorities who owned electricity undertakings and also housing estates were trying to tie the housing estates to their electricity undertakings. So far as the Woolwich electricity undertaking was concerned, there had been losses for many years, and by 1920 they had amounted to £250,000, all of which was paid out of the rates, and the Gas Company had the privilege of paying towards these losses by a competitor.

Mr. Sydney Turner remarked that the Gas Company also shared in the gains.

Mr. Tyldesley Jones said that recently profits had been made on the electricity undertaking, but with the exception of three years nothing had been paid back to the rates. During three years, however, the sum of £46,000 was paid in relief of rates out of electricity profits, against losses made up out of the rates amounting to £250,000. The Woolwich electricity station was now a selected station under the Grid scheme, added Counsel. Continuing, Mr. Tyldesley Jones said the restrictions it was sought to impose upon the actions of local authorities as regards their tenants were also asked to be applied to any land for street improvements which a local authority might sell or let. That point was thoroughly threshed out last year in the case of the Gas Light and Coke Company, and many local authorities then said that if the restrictions were to apply at all they should only apply to tenants and not in the case of selling or letting of land acquired for street improvements. In this connection reference was made to the Newport Corporation Act of 1925, when such powers were applied for the first time to lands acquired by local authorities for street improvements.

Mention was next made to the Housing Act of 1930, and to the endeavour made during the Grand Committee stage to secure the insertion of a clause on the lines of the Newport clause. In that case, however, the Government then in power refused to accept the clause.

The history of the Kettering Gas Bill in 1932 was then gone through, when the local authority was prohibited from imposing restrictions upon the use of gas, and this was followed by a similar brief history of the proceedings in connection with the Gas Light and Coke Company in 1933, which was first opposed by no fewer than 41 local authorities, some of whom owned electricity undertakings and some not. That Bill, however, was passed, and the South Metropolitan Gas Company in the present Bill, said Counsel, was asking for precisely the same powers as were given to the Gas Light and Coke Company. Counsel contended that the principle had now been definitely enunciated in quite simple terms that Housing Authorities should not have powers to restrict the choice of the use of gas or electricity. Therefore, the only question in the present case was whether this principle should be applied to a particular housing estate in Woolwich. As, however, Woolwich had accepted the principle, Counsel contended there should be no exception for a particular estate.

The Page Estate.

In 1920 the Woolwich Council acquired the Page Estate and the Gas Company offered to lay gas mains, pipe the houses, and supply fittings free of charge if gas was used for all purposes, including lighting. In a long review of the dispute between the Company and the Council concerning this Estate, it was pointed out that when the Borough Council refused to allow gas to be used for lighting, the Company offered to lay mains and provide fittings free of charge if the Council would contribute £15 per house, representing half the cost of installation. Subsequently, that offer was withdrawn, and in further negotiations the Council asked that the Gas Company should lay mains and services and provide fittings free of charge, but that gas should not be used for lighting. The Company, however, had consistently refused to do that, and eventually the Council refused to allow the use of any gas at all on this Estate.

The Chairman referred to the point discussed at the beginning of the proceedings and said the Committee would deal with this Bill on its merits and give a decision, and deal in the same way with the Brighton Bill, which is the next on the List.

Mr. Tyldesley Jones then continued his opening speech for the South Metropolitan Gas Bill, and said that an endeavour to rescind the resolution concerning the prohibition of gas on the Page Estate had been made in the Woolwich Council, but, although a new Council was now in power, the voting was 26 for rescission and 26 against, and the Standing Orders required a two-thirds majority.

In a reference to the Middle Park Estate, Counsel pointed out that on the south side—the latest addition—the tenants had free choice, but on the north side, owing to the action of the Council, there was the restriction; but the figures on the south side were 613 houses, out of which 249 used gas for all purposes, 82 of the 249 tenants used electricity for wireless, and only 185 used electricity for all purposes, while 428 used both gas and electricity. This again, said Counsel, was evidence of what the public did when they had a free choice.

The Chairman: Has the Gas Company acted in such a way as to make it inequitable that it should be allowed to supply gas?

Mr. Tyldesley Jones said the Gas Company was not before the Committee on its merits or demerits. It was simply asking that the tenants of municipal estates should be allowed to choose what form of lighting, heating, and power they should use. He impressed upon the Committee that throughout the correspondence concerning the Page Estate the attitude of the Gas Company had been grossly misrepresented. At the beginning, an offer was made to lay mains and services and supply fittings free of charge if gas was allowed to be used for lighting as well as cooking and heating, and subsequently an offer was made to do the same thing for cooking and heating only, if the Council contributed half the cost. It was impossible for the parties to agree, but Mr. Tyldesley Jones complained of the manner in which during the correspondence the Council had repeatedly stated that the Company had refused to give a supply, and the point was emphasized to the Committee that the Company had offered to lay mains and services, and provide fittings free of charge if the tenants were permitted to use gas for all purposes.

Mr. Turner, in answer to the Chairman, said that as far as it was possible to ascertain, the tenants on the Estate were satisfied with the present condition of things.

Mr. Tyldesley Jones promptly challenged that, and informed the Committee that he intended to call a large number of tenants from Woolwich who would tell the Committee that they desired gas, that they found electricity too expensive, and that from their previous experience of gas they knew it was much more convenient.

This closed the opening speech for the promoters and evidence was immediately called from the tenants and was on the lines indicated by Mr. Tyldesley Jones. One witness stated that the standing charge for electricity, which was collected with the rent, was 1s. 9d. per week, and he estimated the cost of electricity, when the house was all-electric, before a coal fire had been installed by the Borough Council, at 6s. per week. This, however, had now been reduced to 3s. per week. This same witness said that he was obliged to sleep his six children in one room because of the expense of heating a number of bedrooms by electricity. Stress was also laid on the value of gas lighting from the point of view of the heating

effect in rooms of the size that exist in these small houses. Other views against the attitude of the Borough Council related to slow boiling with electricity and difficulty of regulating the heat.

Wednesday, March 7.

On the resumption of the proceedings on Wednesday there was a discussion, in the course of which Mr. Sidney Turner, K.C. (for the Woolwich Borough Council), said he was prepared to admit that a number of people on the Page Estate would use gas if they had the opportunity. Mr. Tyldesley Jones, K.C. (for the Gas Company), invited Mr. Turner to go further and to admit that people there urgently wanted gas; he wanted to impress upon the Committee that people urgently desired it, and that it was a great hardship that they should not be allowed to have it. Mr. Turner, however, would not go so far.

Evidence of tenants on the Page Estate was then given, in which the expense of using electricity was emphasized. Some witnesses said they would not use their electric stoves unless it was absolutely necessary, because of the expense, and one went so far as to say that ordinarily she cooked on a coal fire, but in the summer, when the fire was not required for heating, her family had cold meals largely, because the electric stove was not satisfactory. The fact that 20 minutes was required to boil water in the electric kettle was also mentioned.

Mr. *Thomas Powell* (one of the Gas Company's Inspectors, who had been in charge of investigations in the Lewisham section of the Company's area) was the next witness. He said that on the Well Hall Estate, where there were 1,298 houses, 952 consumers were using gas only, 229 used partly gas and partly electricity, and the remainder used electricity only. He also mentioned that in the Page Estate, where gas was not used, he and his assistants had called on about 500 tenants, and as a result had received 207 signed applications for gas.

It was suggested to him by Mr. Turner, in cross-examination, that the Gas Company's canvassers had made generous offers to these tenants, but Mr. Powell replied that they were the customary offers.

Electricity Only for Wireless.

Mr. *George Evetts* (Consulting Engineer) dealt in some detail with an investigation he had made on the Middle Park Estate, Eltham (the property of the Woolwich Borough Council), where both gas and electricity were used. The investigation was made in February, and there were 636 houses occupied; they were fitted with Triplex grates in the living rooms, which grates were used for heating, and on which a certain amount of cooking could be done. Of the 636 houses, 195 were all-electric; 118 used gas cookers and/or coppers, and mixed lighting; 52 had gas cookers and a fire if required; 14 had sundry gas supplies; and 257 were all-gas houses. Of these latter, 115 had electric meters fitted, and practically all the tenants had said that they used the electricity only for wireless. The 115 used so little electricity that they must represent a dead loss to the undertaking.

In view of the fact that in many of the houses gas and electric lighting were installed side by side, he had walked round the estate after lighting hours, and could see the lighting used in the living rooms of approximately 90 of them. In only 2 of them, where both agents were available, was electric light being used; the remainder were using gas. His very definite opinion was that the gas lighting was the agent preferred in the living rooms, and electricity was preferred for occasional use, such as in bedrooms.

Commenting on a letter from the Town Clerk of Woolwich, instructing the Gas Company to take down gas lighting fittings in cases where electricity was installed, he expressed the opinion that that would be a retrograde step, judging by the demands of the tenants.

His investigations led to the conclusions that if the consumers were given the facilities that that estate offered, they would generally use both agents. When both agents were available, the consumers would be encouraged to experiment with the two. When there were 304 houses on the Estate there were 185 gas consumers (61%); when there were 450 houses there were 301 gas consumers (67%); and, with 646 houses, there were 450 gas consumers (70%). If the consumers had the choice, gas would obtain more than two-thirds of the business. In cases where gas and electric lighting were side by side, the use of electric lighting throughout the houses throughout the year was very small in proportion to the use of gas lighting. Investigation had shown that if these side-by-side facilities were put in universally in estates of this type it would add a distinct burden to the cost of gas supply in the area, but a much more serious burden on the cost of electricity supply.

Cross-examined with regard to the Gas Company's estimated cost of equipping the houses in the Page Estate in 1920—viz., £30 12s. 6d. each (of which the Borough Council had been asked to contribute half), Mr. Evetts said that it would have cost about that figure in 1920. The cost of equipping each house electrically would be nearly the same.

This concluded the case for the Gas Company.

Reason for Prohibiting Gas.

Mr. Turner, addressing the Committee on behalf of the Woolwich Borough Council, said that in 1920, when the Page Estate was being considered, the Gas Company were under obligation to supply only to houses within 25 yards of the existing mains, and there was no obligation on the Company to lay mains on the Estate. The Gas Company had stated in February, 1920, that they would be prepared to lay mains, and services, and provide the necessary gas fittings, on condition that they would have an opportunity to light the houses as well as to supply for cooking and heating, since the lighting was the backbone of the business from which the profit was derived. The Council had written that they had decided on lighting by electricity, but they wished to have a supply of gas for cooking and other purposes. At no time had the Council said that the houses were to be all-electric. Letters from the Town Clerk had shown that the Council were influenced by considerations of estate management, as, for instance, that where electricity was used for lighting the internal decoration of the houses would be less expensive. Later the Gas Company had offered a partial supply if the Council would pay £15 towards the cost of carcassing each house, and later still that offer was withdrawn. A year after the Council's request for a supply the Gas Company still said that unless they had the opportunity of supplying gas for lighting as well as for other purposes they would not supply the Estate at all. Thus, the Council having decided that electricity should be used for lighting, the Company had said that in that case there would be no gas for anybody. That was the only reason why the Estate was all-electric.

Then, in 1925, a gas main was laid for a supply to a school, and the Gas Company had commenced to canvass the customers. Naturally, the Council, as trustees for the ratepayers, wished to protect itself, for it had expended capital on the wiring of the houses for electricity. Accepting the figure of £30 per house as the cost of wiring and equipment (to which Mr. Evetts had agreed), and there being over 2,000 houses on the Estate, the capital locked up was about £60,000. The only thing the Council could do in the circumstances was to prohibit the use of gas, and that was the reason for the prohibition in the tenancy agreement.

Some discussion arose out of the Chairman's question as to the period over which the repayment of the money borrowed for the purpose was to be made, and Mr. Turner admitted at once that the money would have been raised on short-term loans, so that it was already substantially, if not completely, repaid. This led the Chairman to point out that the money so expended would not affect the rates to-day; Mr. Turner replied that the rates would be affected to the extent of the expenditure on mains, for which the loan period was longer, but in any case the equipment of the houses was a valuable asset.

To show the efforts made by the Council to satisfy their tenants, Mr. Turner said that in 1932 a deputation of tenants had urged that with coal it was possible to maintain a higher standard of warmth at a reasonable expenditure, and that coal fires also offered an alternative means of cooking; it was urged that many tenants had not the income which would enable them to maintain the same degree of warmth with electricity as with coal. Therefore, the Borough Council was gradually installing Triplex stoves, not in substitution for electricity, but as an alternative.

Discussing the L.C.C. report previously referred to, in which the policy of affording each tenant the choice of using electricity or gas for lighting and other purposes where practicable was dealt with, he said the Woolwich Borough Council agreed that where a new estate was being developed that general principle should apply. Their case in regard to the Page Estate, however, was that, in the circumstances he had mentioned, the Borough Council had been involved in considerable expenditure in providing supplies of electricity, some of which expenditure would be rendered unproductive if gas were introduced now, and that additional charges would be involved on the rates if the Gas Company did what they desired on this Estate.

Another matter to which Counsel drew attention was that on the Well Hall Estate in 1915, where competition was free, and where the Gas Company had had perhaps a little start, 10% of the houses were all-electric. On the Middle Park Estate, in 1932, where there was also free competition, 30% of the houses were all-electric. The deduction to be made from the figures was that the occupiers of such houses were gradually becoming educated to the advantages of electricity for various purposes.

The Chairman asked how that affected the case. If electricity were superior, no one would want gas.

Mr. Turner replied that the process was not yet complete.

The Chairman: You believe in compulsory education?

Mr. Turner said he had not rested his case on educational grounds; but he held that, where the Borough Council had been compelled by the action of the Gas Company to expend capital, that capital should not be rendered unremunerative by the action of the same Gas Company.

He asked the Committee to bear in mind particularly the events of 1920 and 1921 in this particular case, and to decide that, having regard to those events, it would not be equitable now to include the Page Estate within the purview of the Bill.

Preamble of the Bill Proved.

The Committee consulted privately, and subsequently announced that they found the preamble of the Bill proved.

Romford Gas Company.

Reduced Charges for Gas.

The Ordinary General Meeting of the Romford Gas Company was held at the Company's Offices, Mr. BEVOUS J. SMITH, Chairman of Directors, presiding.

The CHAIRMAN said: The report and accounts show that nothing has transpired during the past year to retard the exceptional progress of your undertaking. Year after year I have been able to congratulate you upon the rapid growth of the Company's business, and it gives me great pleasure on this occasion to offer you further congratulations with regard to the successful results obtained in 1933. The operations of the Company are of such a nature that I feel we may well claim to be essentially a "Home Industry," for our interests are local, the employment of local labour is considerable, and our contribution to the local rates is certainly very heavy.

It will be quite evident to you that gas has lost none of its popularity as the "Housewife's Friend" when I tell you that 3,091 new consumers have been connected to the Company's mains during the year, and 3,717 additional appliances fixed on consumers' premises. I may add that at the present time nearly 2,000 lamps are lighted by gas in this Company's area of supply. A total of 630 million c.ft. of gas was sold during 1933, as compared with 584½ millions in 1932, an increase of over 45 millions, equal to 7·82%.

Increased business naturally helps to reduce standing charges, and, consequently, the consumers have been given this advantage by a reduction in the price of gas as from the Christmas reading of the meters. The current charge is now at the low figure of 8·7d. per therm, or 3s. 3·15d. per 1,000 c.ft., and, in passing, I would mention that the present reduction is the fifth within the past five years, during which period the price of gas has been reduced by roughly 7d. per 1,000 c.ft.

On the credit side of the capital account £45,437 has been brought into account representing the balance paid in respect of the issue of £60,000 4% redeemable preference stock at the close of 1932. On the other side, £46,845 has been expended on new mains, meters, and stoves, to meet the requirements of new consumers, and, after crediting stoves sold and providing for depreciation, &c., there remains a net increase in capital expenditure of £16,483 for the year. On revenue account, owing to the increased demand, the sale of gas has produced £111,635, as compared with £109,415 in the previous year, notwithstanding that the price was reduced in January, 1933. Rentals and meters and stoves advanced from £13,972 in 1932 to £15,132, and residual products from £14,671 to £15,916. The coke market remained steady, but the tar market, however, depreciated slightly. The gross revenue profit when added to the carry forward of 1932 gives a total of £35,154, of which, after providing for dividend, interest, and other charges, there remains a sum of £8,301 to be carried forward to the account for 1934. At Dec. 31, 1932, the carry forward was £7,536. The reserve and other funds are in a very healthy condition.

The report and accounts having been adopted, the CHAIRMAN moved, and it was unanimously resolved:

That dividends as recommended by the Directors, viz.:

On the ordinary stock at the rate of 7% per annum (¼% more than last year),

On the 4% redeemable preference stock at the rate of 4% per annum,

On the 5½% preference stock at the rate of 5½% per annum, less income-tax and subject to the interim dividend already paid, less tax, to June 30, 1933, be declared for the year ended Dec. 31, 1933.

Barnet District Gas and Water Company.

Increased Gas Sales.

The Ordinary General Meeting of the Barnet District Gas and Water Company was held at Southern House, London, E.C.

The Directors' report stated that the quantity of gas sold had increased by 1·63%. On Nov. 30 last, £50,000 4½% preference stock was offered for sale by tender, the stock realizing with premiums the sum of £57,315. After placing to renewals (gas and water) funds the authorized contributions, the payment of debenture and other interest and an interim dividend on the ordinary stock at the authorized rate of 7% per annum, and the placing of £5,000 to general reserve, there remained a balance of available profit of £55,867. The Directors recommended the declaration of a dividend, less income-tax, for the half-year ended Dec. 31 last, on the ordinary stock at the rate of 7% per annum, and at 4½% per annum, less income-tax, on the preference stock for 31 days ended Dec. 31 last, leaving to be carried forward a sum of £36,158.

Mr. WILLIAM CASH, F.C.A., J.P., presiding, said that the main feature of their business during the past year had been the fact that it was an expanding business. Gas showed an increased output of 1·63%, and, having regard to the character of the weather in 1933, he thought they were to be congratulated on that. Water showed a substantial increase in sales, receipts being up by £8,069, of which £3,336 represented water for building purposes and gardens. The Company, he said, supplied water to a very large area, covering about 72 square miles and extending from Hatfield to Hampstead Heath, and in that area they gave supplies of varying character. Some of their district was urban and some of it was rural, and they claimed that they were affording a proper supply in every part where such supply could be reasonably made. All the detached communities in the rural areas were supplied with water mains, and the majority of houses took it.

The report and accounts were unanimously adopted, and the payment of the maximum dividends was approved. At an Extraordinary General Meeting the Board's borrowing powers were varied to enable them to issue debenture stock at rates not exceeding 5%.

Gas Companies' Results in 1933

Alnwick.

The Alnwick Gas Company reports that the cost of manufacture has been reduced and the credit balance of the revenue account increased by £200. After providing for interim dividends, writing off £390 for depreciation, and contributing £228 to the special purposes fund, there was an available balance of £2,128, out of which final dividends were proposed, making a total dividend for the year of 4¾% on the consolidated stock and 6% on the preference stock, the balance of £1,622 being carried forward. There was only a fall of ¾% in the output of gas.

Douglas (I.o.M.).

The Douglas Gas Light Company shows a profit of £12,169, this being an increase of £803 on the previous year's accounts, despite the fact that during the year an island electricity scheme had come into operation. The dividend on the Company's ordinary shares has been increased from 7 3/16% to 7½%, while the price of gas has been reduced to the consumers by 4d. per therm and the scale of discounts to large consumers extended. Besides Douglas, the other Manx towns are meeting the competition of electricity with success. At Ramsey an imposing new showroom has been acquired by the Ramsey Gas Light Company, who have been encouraged by the fact that the contract for the municipal lighting of the town has been renewed for a period of three years, despite the fact that the Manx Government's electricity scheme has been put into operation in the town during the winter.

East Kent (S.E. Gas Corporation).

The accounts of the East Kent Gas Company cover a period of 21 months, from April 1, 1932, to Dec. 31, 1933. During the period under review, the sum of approximately £13,000 has been expended on capital account. This sum includes the purchase of the capital assets of the Bridge Gas Coke and Coal Company, Ltd., and the Chilham Consumers' Gas Company, Ltd., and also the laying of a main linking up the Ash-next-Sandwich Gas Light Coal and Coke Company, Ltd., in which Undertaking the East-Kent Company has obtained a majority holding. An agreement has been entered into for the supply of gas in bulk to that Company. On the credit side of the capital account, under "Capital Reconstruction" the issued share capital now stands at £93,706, and the loan capital at £25,000. The redemption of £14,360 debentures has been effected since the presentation of the last accounts, resulting in a considerable saving in interest charges. A sum of £1,399 has been debited in respect of depreciation of meters, stoves, &c., and £1,750 for depreciation of mains and services. From the net revenue account it is seen that, including the balance brought forward on April 1, 1932, the amount available for distribution is £7,079. A bonus of 4½% having been paid in respect of the year to March 31, 1933, the Directors recommended the payment of a dividend on the present share capital of the Company of 3⅜% actual, less tax, which is equivalent to 4½% per annum for the nine months from April 1 to Dec. 31, 1933. This will absorb the sum of £3,163, leaving £3,916 to be carried forward to 1934. The sales of gas (excluding bulk supplies to the Whitstable Gas and Coke Company, Ltd.) for the year to Dec. 31, 1933, show an increase of 8½% over the previous year.

Horsham.

The sale of gas by the Horsham Gas Company shows a further increase of 4·7%; and the demand for additional gas appliances has been most satisfactory. In April last, a reduction was made in the charge for gas amounting to 1d. per therm, and further concessions will shortly be announced. The response to the offer of the East Surrey Gas Company to purchase the shares from the holders in this undertaking in July last, enabled the East Surrey Gas Company to secure a majority interest which became effective on Sept. 1, 1933. In accord therewith, Messrs. William Hammond, Sidney Colgate, and J. Ireland Eager retired from the Board in favour of Messrs. W. Lees Stenning, John Urquhart, and William Henry Bennett. In November, the Directors issued by tender £6,900 4½% preference capital, which was heavily over-subscribed and realized an average price of £10 17s. 4d. per £10 share. The

Directors recommend a final dividend of 3½%, less income-tax, making, with the interim dividend, 7% for the year on both "original" and "additional" shares. This will absorb the sum of £1,050, leaving a balance of £3,951 to be carried forward.

Sittingbourne (S.E. Gas Corporation).

No additions have been made to the capital account of the Sittingbourne District Gas Company during the year, but £1,138 has been written off as depreciation of gasholders, meters, and stoves, so that the debit balance stands at £6,335. The revenue account shows an increased profit of some £500 in spite of a decrease in gas sold of 3·3%. The revenue from gas has accordingly fallen by £800, and there is a small decrease in the receipts from residuals, due to the smaller quantity of coals carbonized. These decreases are, however, set off by a saving on the expenditure side under manufacture and distribution of over £1,000. The net revenue account shows a profit of £8,881, from which the payment of the following dividends (less income-tax) was recommended in respect of the second half-year—viz., on the original ordinary shares at the rate of £7 10s.% per annum, and on the additional ordinary shares at the rate of £5 5s.% per annum, leaving £7,179 to be carried forward, as against £6,443 for the previous year. The rate of interest paid on mortgages during the year has been 5%, but in view of the altered standards of value in the money market it has been arranged that from the beginning of this year the rate will be changed to 4%. On the whole, the accounts indicate that the Company is in a strong position. The Company has an authorized statutory area of some 40 square miles, and every endeavour is being made to further the development within this area. To this end they have introduced the system of block rate charges for gas. The effect of these charges is to give a proportionately decreasing price for gas, corresponding with increased consumption. Prepayment consumers are also to benefit as an additional reduction of 2d. per 1,000 c.ft. is to be allowed to them.

Swindon.

During the year 854 new and additional consumers have been added to the Swindon United Gas Company's area of supply, bringing the total to 17,907. The balance standing to the credit of profit and loss account amounts to £13,921, out of which the Directors recommend payment of dividends for the December half-year as follows: On the 4½% preference shares at the rate of 2¼%; on the 5½% preference stock at the rate of 2¾%; on the 5% consolidated ordinary stock at the rate of 3% (all less income-tax), which with the interim dividend paid for the June half-year of 2½% on preference shares, 2¾% on preference stock, and 2½% on the consolidated ordinary stock makes 4½, 5½, and 5½% respectively for the year. This will absorb £5,037, leaving £8,883 to be carried to next account. The extension to Chisledon referred to in the report for 1932 has now been completed and is working satisfactorily. In addition to the two reductions in the price of gas during 1932, further concessions have been made during 1933 by the introduction of a two-part tariff charge and a reduction for industrial purposes.

Wellington (Salop).

The Directors of the Wellington (Salop) Gas Company present accounts for the year showing a profit of £7,152. The Directors recommend the payment of a dividend of 3% on the redeemable preference stock for the half-year, 1933, making with the interim dividend already paid, 6% for the year, less tax. On the ordinary stock they recommend a dividend of 3½% for the half-year, making with the interim dividend already paid, 7% for the year, less tax. The business of the Company continues to be satisfactory, the sale of gas for the year showing an increase of over 4½ million c.ft., or 20,943 therms.

Woking.

In comparison with the year ended Dec. 31, 1932, there is an increase in the quantity of gas sold by the Woking District Gas Company of 8,915,293 c.ft., or 4·57%. Receipts from the sale of residual products also show an increase of £467. The net gains in consumers during the year number 374, and 1,598 cookers, gas fires, &c., have been fitted. The profit on revenue account, including interest receivable, is £15,642, and after charging interest on debentures, loans, &c., and income-tax, amounting in total to £5,837, there remains a balance of £9,805, which represents the net profit for the year, to which must be added £4,266, the balance brought forward from last account. The interim dividend absorbed £3,852, leaving a disposable balance of £10,219, as shown in the profit and loss account. The Directors recommend final dividends for the year 1933 at the following rates (less income-tax): On the "A" ordinary stock, £5 10s.%, making £11% for the year; on the "B" ordinary stock, £3 17s.%, making £7 14s.% for the year; on the "C" preference stock, £2 10s.%, making £5% for the year; on the 8% redeemable preference stock, £4%, making £8% for the year; and that £500 be transferred to reserve fund. These appropriations will amount to £4,352, leaving a balance of £5,866 to be carried forward to next account.

ABRIDGED PROSPECTUS.

THE DUDLEY, BRIERLEY HILL AND DISTRICT GAS COMPANY.

SALE BY TENDER OF

£50,000 5 per cent. CONSOLIDATED PREFERENCE STOCK.

MINIMUM PRICE—£105 per £100 Stock, Yielding at that price £4 15s. 3d. per cent.

THE DIRECTORS are prepared to receive on or before the 21st March, 1934, at 12 o'clock noon, TENDERS for the purchase of FIFTY THOUSAND POUNDS (nominal) OF FIVE PER CENT. CONSOLIDATED PREFERENCE STOCK.

Tenders must be for not less than £10 and in multiples of £1.

A deposit of 10 per cent. must accompany every Tender, and the balance of the purchase money, including the premium, shall be paid to the Company's Bankers not later than 30th April, 1934.

No portion of this issue has been or will be underwritten.

Stock Certificates will be issued, free of expense, in exchange for fully paid Letters of Allotment, after which it will be transferable, subject to Stamp Duty, in multiples of One Pound.

Dividend will be paid on 1st September next covering the period from 1st May to 30th June, 1934; thereafter it will be payable half-yearly, on 1st March and 1st September.

The Town of Dudley Gaslight Company was first Incorporated by Act of Parliament in 1821, and the Brierley Hill District Gas Light Company in 1849. The two Companies were amalgamated in 1931.

Both Companies paid their maximum statutory dividends for over fifty years prior to the date of their amalgamation on 1st October, 1931, and the new Company has paid full statutory dividends since that date.

The net Revenue for the year ended 31st December, 1933, as shown by the Audited Accounts was	£23,032	9	0
Deducting Interest on the Loan Capital, and Bank Interest not covered by this Issue	6,505	1	11
There remains a balance of	£16,527	7	1

As the interest on the Preference Stock (including this issue) is £3,263 15s. this amount of £16,527 7s. 1d. covers such interest 5 times.

The area of supply comprises the County Borough of Dudley, the Urban Areas of Brierley Hill and Quarry Bank, the Rural District of Kingswinford (except a portion of the District of Wordsley), the Parishes of Wombourne, Himley, Kinver, and a small part of the Urban District of Sedgley, covering some 35 square miles with a population of over 100,000.

Many of these areas are rapidly developing, and a considerably increased Revenue is anticipated.

The output of Gas for 1933 was over 500 million cubic feet (over 2¼ million therms), an increase of 6·3 per cent. over 1932 and a record for the Company. The number of consumers also reached a record figure.

The proceeds of the present issue of Capital will be utilized to repay advances by the Company's Bankers necessitated by heavy expenditure on Capital Account for extension and modernization of Works and extension of distribution plant, in order to keep pace with the growing demand for Gas.

A Brokerage of 5s. per cent. will be paid on all Stock allotted in respect of Tenders bearing the stamp of a Broker, Banker, Solicitor, or Accountant.

By Order of the Directors,
GEORGE E. ASHURST,
Secretary.

HEAD OFFICES,
SPRING GARDENS, DUDLEY, WORCS.
12th March, 1934.

Copies of the full Prospectus and Forms of Tender may be obtained from the Secretary of the COMPANY at the HEAD OFFICES, SPRING GARDENS, DUDLEY, at any of the Midland Branches of BARCLAYS BANK, LTD., or from MESSRS. GRIFFITHS & LAMB, 104 and 106, COLMORE ROW, BIRMINGHAM, 3.

The Company's last Audited Statement of Accounts can be obtained on application to the Secretary.

GAS MARKETS & MANUFACTURES

Stock Market Report.

[For Stock and Share List, see later page.]

Business on the Stock Exchange last week continued at a high level, and, though a large profit-taking movement set in which at one time led to some reaction, the prices of many gilt-edged stocks and leading industrials closed a trifle higher than the previous week. One dull spot was the Home Rail market, for despite a continuance of satisfactory traffic returns this section bore the brunt of profit-taking and prices suffered rather heavily. Conditions became rather dull towards the close on Saturday, but it is anticipated that the current week will see a return to former activity.

The recent large turnover in high-class investments has given a fillip to Gas stocks and shares, and a further large volume of business was recorded last week. Prices generally were well maintained, and, apart from a number of *ex* div. markings, there were no falls of consequence. It will be noticed in the Stock and Share List that the margins of several leading stocks have been narrowed—*e.g.*, Imperial Continental from 10 to 5 points and South Metropolitan from 5 to 3 points. All the Gas Light issues were well supported and led to a further gain of 3d. in the £1 units to 26s., while both the 3% and 5% debentures hardened. Mid-Southern District Utility 4% preference was in demand, and the price rose 2 to 97½; Newport (Mon.) 5% maximum gained 1 to 103 on the Bristol Exchange; and Bombay £1 shares rose 6d. to 28s.

Particulars have now been published of the recently formed new holding Company, the South-Western Gas Corporation, which is acquiring by agreement a controlling interest in seven gas undertakings in Devon and Cornwall—viz., the Truro Gas Company, St. Austell Gas Company, Ltd., Camborne Gas Company, Ltd., St. Blazey Gas Company, Ltd., Bude Gas Company, Okehampton Gas Company, Ltd., and the Padstow and St. Columb Gas Company, Ltd. The authorized capital is £600,000 divided into 200,000 4½% redeemable cumulative £1 preference shares and 400,000 £1 ordinary shares, of which has been issued 50,000 preference shares and 100,000 ordinary shares. Business in the new shares has been recorded in the Supplementary List on the London Exchange, the ordinary shares changing hands at prices ranging from 20s. 10½d. to 21s. 6d., and the 4½% preference shares at 20s. 10½d.

Current Sales of Gas Products.

The London Market for Tar Products.

LONDON, *March* 12.

There are no changes to report in the prices of tar products, which are as follows:

Pitch, 57s. 6d. per ton f.o.b.

Creosote, 3d. to 3¼d. per gallon.

Refined tar, 4d. to 4¼d. per gallon in bulk at makers' works.

Pure toluole, about 2s. 9d.; pure benzole, 1s. 10d. to 1s. 11d.; 95/160 solvent naphtha, about 1s. 9d.; and 90/140 pyridine bases, about 6s.—all per gallon naked at makers' works.

Tar Products in the Provinces.

March 12.

The average prices of gas-works products during the week were: Gas-works tar, 23s. to 28s. Pitch—East Coast, 57s. 6d. to 60s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 57s. 6d. to 60s.* Toluole, naked, North, 2s. 2d. to 2s. 4d. Coal-tar crude naphtha, in bulk, North, 6¼d. to 6¾d. Solvent naphtha, naked, North, 1s. 6d. to 1s. 7d. Heavy naphtha, North, 10¼d. to 11d. Creosote, *ex* works, in bulk, North, liquid and salty, 2¼d. to 2¾d.; low gravity, 2d. to 2½d.; Scotland, 2½d. to 2¾d. Heavy oils, in bulk, North, 3¾d. to 4¼d. Carbolic acid, 60's, 2s. 1½d. to 2s. 2½d. Naphthalene, £10 to £11. Salts, 55s. to 75s., bags included. Anthracene, "A" quality, 2½d. to 3d. per minimum 40%, purely nominal; "B" quality, unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *March* 10.

While new business is still rather slow, prices of most products are well maintained.

Crude gas-works tar.—The actual value is 35s. to 37s. per ton *ex* works.

Pitch—Export value is nominal at 50s. per ton f.o.b. Glasgow. Small quantities for home use command 47s. 6d. per ton *ex* works in bulk.

Refined tar is fairly active for delivery over the season at 3¼d. per gallon *ex* works in buyers' packages.

Creosote oil.—Supplies continue on the short side, and prices are, therefore, firm. B.E.S.A. Specification is 4d. to 4¼d. per gallon; low gravity, 4d. to 4¼d. per gallon; and neutral oil, 4d. to 4⅛d. per gallon—all in bulk *ex* works.

Cresylic acid.—Prices are steady, although new business is not too plentiful. Pale, 97/99%, is 1s. 1d. to 1s. 2d. per gallon; dark, 97/99%, 11d. to 1s. per gallon; and pale, 99/100%, 1s. 4d. to 1s. 5d. per gallon—all f.o.r. in buyers' packages.

Crude naphtha is still firm at 4⅜d. to 5¼d. per gallon, according to quality and quantity.

Solvent naphtha.—90/160 grade is 1s. 5d. to 1s. 5½d. per gallon, while 90/190 grade is 9d. to 10d. per gallon.

Motor benzole.—Available supplies command 1s. 7d. per gallon *ex* works in bulk.

Pyridines.—90/160 grade is 4s. 6d. to 4s. 9d. per gallon, and 90/140 grade is 5s. to 5s. 3d. per gallon.

Benzole Prices.

These are considered to be the market prices for benzole at the present time:

	s. d.		s. d.	
Crude benzole	0 10	to	0 10½	per gallon at works
Motor ,,	1 5	,,	1 5½	,, ,, ,,
90% ,,	1 5½	,,	1 6	,, ,, ,,
Pure ,,	1 8½	,,	1 9	,, ,, ,,

Contracts Advertised To-Day.

Retorts.

Pontefract Corporation. [p. 704.]

Trade Notes.

J. Brockhouse & Co., Ltd.

Mr. Bone, who has until recently been the Sales and Commercial Manager for the Eagle Range Company, Ltd., and who prior to that was on the staff of Triplex Grates, has now joined the selling force of Messrs. J. Brockhouse & Co., Ltd., as Sales Manager of the "C.C. Fires" department.

Special Order Applications.

ORDER UNDER SECTION 1.

Chapel Whaley and District Gas Company.

The Company are applying to the Board of Trade for an Order authorizing them to increase their share capital by the sum of £33,000.

New Capital Issues.

Dudley, Brierley Hill, and District Gas Company.—As will be seen from our advertisement columns, this Company are offering for sale by tender £50,000 of 5% consolidated preference stock at a minimum price of issue of £105 per £100 of stock, yielding at that price £4 15s. 3d.%. Tenders must be received not later than 12 o'clock noon on March 21.

Slough Gas and Coke Company.—As will be seen from our advertisement columns, Messrs. A. & W. Richards are offering for sale by tender on behalf of this Company £20,000 of 4% perpetual debenture stock at a minimum price of issue of par; and also £30,000 of ordinary stock at a minimum price of £140 per £100, yielding at that price 5%. Tenders must be received not later than 11 a.m. on Tuesday, March 27.

STOCK AND SHARE LIST.

Official Quotations on the London and Provincial Stock Exchanges.

Issue. £	Share.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations. Mar. 10. (Provincial Exchanges Mar. 9.)	Rise or Fall on Week.	Transactions. Lowest and Highest Prices During the Week.
1,551,868	Stk.	Oct. 9	7	7	Alliance & Dublin Ord. ...	130–135	...	...
374,000	"	Jan. 8	4	4	Do. 4 p.c. Deb. ...	90–100	...	97½
557,655	"	Mar. 5	7	7	Barnet Ord. 7 p.c.	165–170*	−2	171
300,000	1	Oct. 23	1·92	1/4½	Bombay, Ltd	27/–29/-	+-	...
178,480	Stk.	Feb 19	9½	9½	Bournemouth sliding scale	195–205	...	...
550,050	"	"	7	7	Do. 7 p.c. max. ...	161–166	...	165–166
439,160	"	"	6	6	Do. 6 p.c. Pref ...	139–143	...	142½–142¾
50,000	"	Dec. 18	3	3	Do. 3 p.c. Deb. ...	75–80	...	...
262,025	"	"	4	4	Do. 4 p.c. Deb. ...	100–105	...	...
335,000	"	"	5	5	Do. 5 p.c. Deb. ...	120–125	...	...
357,900	"	Mar. 5	7½	7½	Brighton, &c., 6 p.c. Con ...	161–166*	−3	164
540,000	"	"	6¾	6¾	Do. 5 p.c. Con. ...	149–154*	−2	...
195,500	"	"	6	6	Do. 6 p.c. B. Pref.	134–139*	−2	...
1,487,500	"	Mar. 5	5	5	Bristol 5 p.c. max.	115–116a*	−2	...
120,420	"	Dec. 18	4	4	Do. 1st 4 p.c. Deb. ...	100–102a	...	...
217,870	"	"	4	4	Do. 2nd 4 p.c. Deb. ...	100–102a	...	...
328,790	"	"	5	5	Do. 5 p.c. Deb.	120–123a	...	...
855,000	"	Sept 25	8	7	British Ord.	155–160	...	158–159½
100,000	"	Dec. 18	7	7	Do. 7 p.c. Pref.	153–158	...	155
350,000	"	"	5½	5½	Do. 5½ p.c. Pref.	106–111	...	...
120,000	"	"	4	4	Do. 4 p.c. Red. Deb. ...	95–100	...	...
450,000	"	"	5	5	Do. 5 p.c. Red. Deb. ...	107–112	...	...
160,000	"	Jan. 8	5	5	Cambridge 5 p.c. Deb. ...	115–120	...	...
100,000	10	May 22	6	4	Cape Town, Ltd.	5–6	−½	5½
100,000	10	Nov. 6	4½	4½	Do. 4½ p.c. Pref. ...	6¾–7¾	...	...
150,000	Stk.	Dec. 18	4½	4½	Do. 4½ p.c. Deb. ...	95–100	...	99–99½
636,860	"	Feb. 19	6	6	Cardiff Con. Ord.	121–126	...	...
237,860	"	Jan. 8	5	5	Do. 5 p.c. Red. Deb.	103–108	...	...
157,150	"	Feb. 19	5	6⅔	Chester 5 p.c. Ord.	119½–129½b	...	...
98,936	1	Oct. 9	2/-	2/-	Colombo, Ltd. Ord.	1⅝–1⅞	...	...
24,500	1	"	1/4½	1/4½	Do. 7 p.c. Pref. ...	19/- –21/-	...	...
609,204	1	Oct. 9	/11'48	/11'48	Colonial Gas Assn. Ltd. Ord.	1⅝–1⅞	...	...
296,053	1	"	1/3'30	1/3'30	Do. 8 p.c. Pref.	23/–25/-	...	...
1,775,005	Stk.	Feb. 19	5	6⅔	Commercial Ord.	120–125	...	121
475,000	"	Dec. 18	3	3	Do. 3 p.c. Deb. ...	76–81	...	78
286,344	"	Mar. 5	5	5	Do. 5 p.c. Deb. ...	119–124*	−2	122–122½
807,560	"	Feb. 19	7	7	Croydon sliding scale ...	151–156	...	155
569,590	"	"	5	5	Do. max. div.	103–108	...	107–108
620,385	"	Jan. 8	5	5	Do. 5 p.c. Deb. ...	120–125	...	125
542,270	"	Mar. 5	7	10	Derby Con.	175–180c*	−2	...
55,000	"	Jan. 8	4	4	Do. 4 p.c. Deb.	98–100c	...	...
209,000	"	Feb. 19	5	5	East Hull Ord. 5 p.c. ...	106–111	...	...
179,500	"	Mar. 5	6	6	East Surrey Ord. 5 p.c. ...	126–131*	−2	128–129
155,019	"	Dec. 18	5	5	Do. 5 p.c. Deb. ...	115–120	...	...
1,002,180	"	Sept 25	17	15	European, Ltd.	125–135	...	125–127½
19,342,763	"	Feb. 19	5⅔	5⅔	Gas Light & Coke 4 p.c. Ord.	25/6–26/6f	+·/3	25/4½–26/8
2,600,000	"	"	3½	3½	Do. 3½ p.c. max.	86–89	...	87¼–88½
4,477,106	"	"	4	4	Do. 4 p.c. Con. Pref. ...	102–105	...	103½–104½
6,102,497	"	Dec. 18	3	3	Do. 3 p.c. Con. Deb. ...	83–86	+1	84–85½
3,642,770	"	"	5	5	Do. 5 p.c. Red. Deb. ...	115–118	+1	116½–117½
3,500,000	"	"	4½	4½	Do. 4½ p.c. Red. Deb. ...	113–116	...	113⅝–115
270,466	"	Mar. 5	6	6	Harrogate New Cons. ...	125–130*	−2	...
82,500	"	Mar. 5	7	7	Hastings & St. L. 5 p.c. Conv.	147–152*	−2	...
258,740	"	"	5½	5½	Do. 3½ p.c. Conv	115–120*	−2	...
140,000	1	Oct. 9	110	1/7½	Hongkong & China, Ltd. ...	29/- 32/	...	...
213,300	Stk.	Mar. 5	6	6	Hornsey Con. 3½ p.c. ...	128–133*	−2	...
5,600,000	"	Nov. 6	14	10	Imperial Continental Cap.	204–209	−½	204½–209
223,180	"	Feb. 5	3½	3½	Do. 3½ p.c. Red. Deb.	89 94	...	93–93½
235,342	"	Mar. 5	8½	8½	Lea Bridge 5 p.c. Ord. ...	169–174*	−3	170½–172
2,167,410	"	Mar. 5	6	6	Liverpool 5 p.c. Ord. ...	129½–131⅜*	−2½	...
245,500	"	Dec. 18	5	5	Do 5 p.c. Red. Pref. ...	101–111a	...	...
306,083	"	July 17	4	4	Do. 4 p.c. Deb. ...	101¼–103½b	...	...
165,736	"	Feb. 19	8	10	Maidstone 5 p.c. Cap. ...	180–190	...	...
56,176	"	Jan. 8	3	3	Do. 3 p.c. Deb. ...	72–77	...	...
75,000	5	Dec. 4	†10	†10	Malta & Mediterranean ...	9–11	...	...
392,000	—	Oct. 2	5½	5½	Metropolitan (of Melbourne) 5½ p.c. Red. Deb.	98–103	...	...
231,978	Stk.	Feb. 19	5	5	M. S. Utility "C." Cons. ...	113–118	...	114½
818,657	"	"	4	4	Do. 4 p.c. Cons. Pref.	95–100	+2	96½–98
360,075	"	Jan. 8	4	4	Do. 4 p.c. Deb. ...	100–105	...	...
148,955	"	"	5	15	Do. 5 p.c. Deb. ...	117–122	...	...
675,000	"	21 May '31	18	6	Montevideo, Ltd.	60 70	...	...
2,061,315	"	Mar. 5	5	5½	Newcastle & Gateshead Con.	25/6–26/-d*	−/6	...
682,856	"	"	4	4	Do. 4 p.c. Pref. ...	99–100d*	−2	...
776,706	"	Jan. 8	3½	3½	Do. 3½ p.c. Deb. ...	90⅜–91⅜d	...	...
277,285	"	Nov. 6	5	5	Do. 5 p.c. Deb. '48 ...	105–107d	...	...
274,000	"	Feb. 19	5	5	Newport (Mon.) 5 p.c. max.	109–104a	+1	...
204,940	"	Aug. 28	7½	7½	North Middlesex 6 p.c. Con.	157–162	...	160
396,160	"	Feb. 5	5	5	Northampton 5 p.c. max. ...	99–104	...	...
300,000	"	Dec. 4	7	19	Oriental, Ltd.	147–152	...	...
316,617	"	Dec. 18	8	8	Plym'th & Stonehouse 5 p.c.	165–170	...	168
504,416	"	Feb. 19	8	8	Portsm'th Con Stk. 4 p.c. Std	168–173	...	170½–171½
241,446	"	"	5	5	Do. 5 p.c. max. ...	105–110	...	107–107½
114,000	"	Feb. 19	5	5	Preston 5 p.c. Pref.	103–108	...	...
686,312	"	Jan. 22	4	4	Primitiva 4 p.c. Rd. Db. 1911	87–92	...	...
389,813	"	Dec. 18	4	4	Do. 4 p.c. Cons. Deb.	88–93	...	91¾
150,000	10	Sept. 25	6	6	San Paulo 6 p.c. Pref. ...	6½–7½	...	...
1,736,968	Stk.	Sept. 11	6	6	Sheffield Cons.	135–137e*	...	...
95,000	"	Jan. 8	4	4	Do. 4 p.c. Deb.	94–98e	...	...
133,201	"	Feb. 19	5⅓	5	Shrewsbury 5 p.c. Ord. ...	135–140	...	...
90,000	10	June 12	15	14	South African	3–5	...	...
6,709,895	Stk.	Feb. 19	5	7	South Met. Ord.	131–134	...	131½–134
1,135,812	"	"	6	6	Do. 6 p.c. Irred. Pf.	138–143	...	139½
850,000	"	"	20/-g	4	Do. 4 p.c. Irred. Pf.	101–105	...	103½–105
1,895,445	"	Jan. 8	3	3	Do. 3 p.c. Deb ...	82–85	...	83½–84½
1 000,000	"	Jan. 22	5	5	Do. 5 p.c. Red. Deb.	111–115	...	...
209,820	"	Mar. 5	8½	8½	South Shields Con.	166–167d*	−3	...
1,543,795	"	Feb. 19	6	6	South Suburban Ord. 5 p.c.	129–134	...	131–133½
512,825	"	"	5	5	Do. 5 p.c. Pref.	112–117	...	116–117
300,000	"	"	—	4	Do. 4 p.c. Pref.	99–102	...	101½
868,837	"	Dec. 18	5	5	Do. 5 p.c. Deb.	120–125	...	...
100,000	"	"	4	4	Do. 4 p.c. Deb.	100–103	...	...
647,740	"	Mar. 5	6	6	Southampt'n Ord. 5 p.c. max.	109–114*	−2	...
121,275	"	Dec. 18	4	4	Do. 4 p.c. Deb.	97–102	...	...
350,000	"	Mar. 5	5½	5½	Swansea 5½ p.c. Red. Pref.	106 111*	−2	...
200,000	"	Dec. 18	6⅔	6⅔	Do. 6⅔ p.c. Red. Deb.	103–108	...	...
1,076,490	"	Mar 5	6¾	6¾	Tottenham and District Ord.	148–153*	−2	150–152
409,835	"	"	5	5	Do. 5 p.c. Pref. ...	123–128*	−2	125–126
62,235	"	"	5	5	Do. 5 p.c. Pref. ...	110–115*	−2	...
199,005	"	Dec. 18	4	4	Do. 4 p.c. Deb. ...	97–102	...	...
85,701	"	Oct. 9	6	6	Tuscan, Ltd. 6 p.c. Red. Db.	90–100	...	...
349,110	"	Mar. 5	7	7	Uxbridge, &c., 5 p.c. ...	147–152*	−2	...
88,330	"	"	5	5	Do. 5 p.c. Pref. ...	110–115*	−2	...
1,322,220	"	Mar. 5	7	7	Wandsworth Consolidated	155–160*	...	155–160
1,096,373	"	"	5	5	Do. 5 p.c. Pref.	117–12a*	−2	119–120½
1,317,964	"	Dec 18	5	5	Do. 5 p.c. Deb.	120–125	...	123
158,400	"	Mar. 5	5	6h	Winchester W. & G. 5 p.c. Con.	115–120*	...	...

Quotations at:—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f.*—The quotation is per £1 of stock. *g.*—For quarter. *h.*—Paid £3, including 10s. on account of back dividends. * Ex. div. † Paid free of income-tax. ‡ For year. Hongkong & China, Ltd.—paid on £10 shares.

STOCK FOR SALE BY TENDER.

(See also p. 697.)

By Order of the Directors.

SLOUGH GAS AND COKE COMPANY.

Messrs. A. & W. RICHARDS

are Instructed to OFFER FOR SALE BY TENDER

£20,000

FOUR PER CENT. PERPETUAL DEBENTURE STOCK.

Minimum Price of Issue, Par; and

£30,000

ORDINARY STOCK,

ranking equally with existing similar Stock, which has received 7 per cent. per annum for the last nine-years-and-a-half.

Minimum Price of Issue, £140 per £100.

Yielding at that Price, 5 per cent.

Prospectus and Forms of Tender (which latter must be sent in by 11 o'clock on Tuesday, 27th March) may be obtained of A. & W. RICHARDS, 37, WALBROOK, E.C. 4.

STOCK FOR SALE BY TENDER.

By Order of the Directors.

ANDOVER LIGHTING AND POWER COMPANY.

(Established 1838. Special Act, 1905.)

THE above Company is offering for SALE BY TENDER

£15,000

5% PREFERENCE STOCK.

(Minimum price of issue, Par.)

Prospectus and Form of Tender can be obtained from the SECRETARY of the COMPANY, GAS-WORKS, ANDOVER, or the WESTMINSTER BANK, LTD., ANDOVER, or from the COMPANY'S AUDITORS, Messrs. WOOD, DREW, & CO., 139, CANNON STREET, LONDON, E.C.

The latest time for the receipt of Tenders is Twelve o'clock noon on Wednesday, March 21st, 1934.

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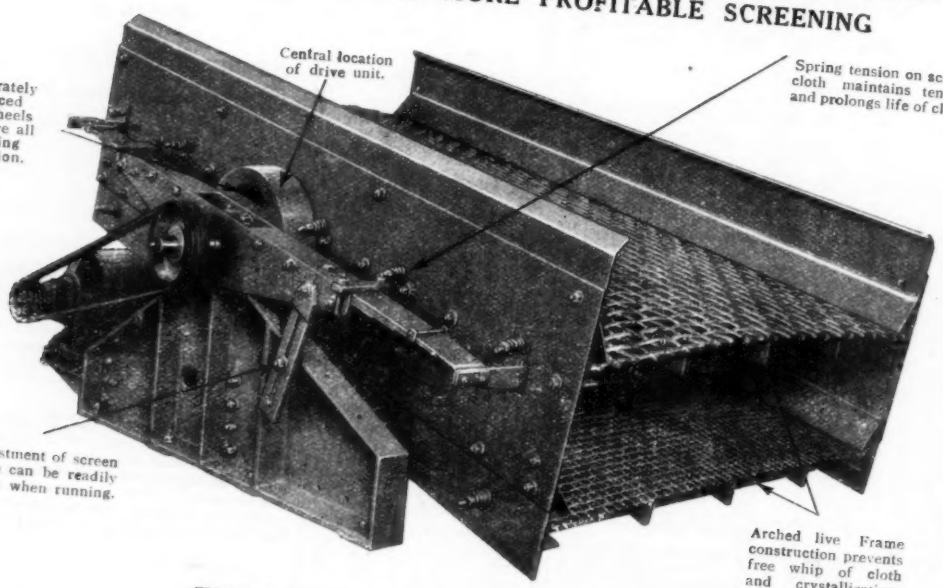
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